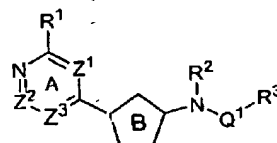


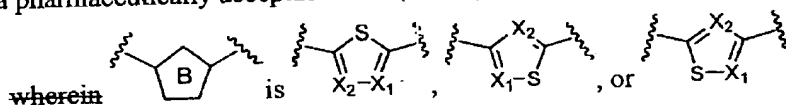
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# AMENDMENTS TO THE CLAIMS

1. (Currently amended) A compound of formula I:



or a pharmaceutically acceptable salt thereof, wherein:



$R^1$  is halogen, CN,  $NO_2$ , or  $V_mR$ ;

$Z^1$  and  $Z^3$  are each independently  $CR^Z$ , and  $Z^2$  is  $CR^1$ ;

each occurrence of  $R^Z$  is independently halogen, CN,  $NO_2$ , or  $U_nR'$ ;

$R^2$  is  $U_nR'$ ;

$X^1$  and  $X^2$  are each independently  $CR^4$  or N;

each occurrence of  $R^4$  is independently halogen, CN,  $NO_2$ , or  $V_mR$ ;

each occurrence of U or V is independently an optionally substituted  $C_{1-6}$  alkylidene chain, wherein up to two methylene units of the chain are optionally and independently replaced by  $-NR-$ ,  $-S-$ ,  $-O-$ ,  $-CS-$ ,  $-CO_2-$ ,  $-OCO-$ ,  $-CO-$ ,  $-COCO-$ ,  $-CONR-$ ,  $-NRCO-$ ,  $-NRCO_2-$ ,  $-SO_2NR-$ ,  $-NRSO_2-$ ,  $-CONRNR-$ ,  $-NRCONR-$ ,  $-OCONR-$ ,  $-NRNR-$ ,  $-NRSO_2NR-$ ,  $-SO-$ , or  $-SO_2-$ ,  $P(O)$ ,  $P(O)_2$ , or  $P(OR')$ ;

m and n are each independently 0 or 1;

each occurrence of R is independently hydrogen or an optionally substituted  $C_{1-6}$  aliphatic group; and each occurrence of  $R'$  is independently hydrogen or an optionally substituted  $C_{1-6}$  aliphatic group, a 3-8-membered saturated, partially unsaturated, or fully unsaturated monocyclic ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, or an 8-12 membered saturated, partially unsaturated, or fully unsaturated bicyclic ring system having 0-5 heteroatoms

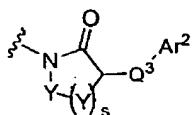
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independently selected from nitrogen, oxygen, or sulfur; or R and R', two occurrences of R, or two occurrences of R', are taken together with the atom(s) to which they are bound to form an optionally substituted 3-12 membered saturated, partially unsaturated, or fully unsaturated monocyclic or bicyclic ring having 0-4 heteroatoms independently selected from nitrogen, oxygen, or sulfur;

Q<sup>1</sup> is -CO-, -SO<sub>2</sub>-, or -SO<sub>2</sub>NR-;

R<sup>3</sup> is Q<sup>2</sup>-Ar<sup>1</sup>,

or R<sup>2</sup> and Q<sup>1</sup>-R<sup>3</sup>, taken together with the nitrogen atom, form the cyclic group:



, where s is 1 or 2, each occurrence of Y is independently, as valency and stability permit, -CO-, -CS-, -SO<sub>2</sub>-, -O-, -S-, -NR<sup>5</sup>-, or -C(R<sup>5</sup>)<sub>2</sub>-, and R<sup>5</sup> is U<sub>n</sub>R';

Q<sup>2</sup> and Q<sup>3</sup> are each independently a bond or a C<sub>1-6</sub> alkylidene chain, wherein up to two methylene units of the chain are each optionally and independently replaced by -S-, -O-, -CS-, -CO<sub>2</sub>-, -OCO-, -CO-, -COCO-, -CONR'-, -NR'CO-, -NR'CO<sub>2</sub>-, -SO<sub>2</sub>NR'-, -NR'SO<sub>2</sub>-, -CONR'NR'-, -NR'CONR'-, -OCONR'-, -NR'NR'-, -NR'SO<sub>2</sub>NR'-, -SO-, or -SO<sub>2</sub>-; and wherein any carbon atom in the one or more methylene units is optionally substituted with one or two occurrences of R<sup>6</sup>, wherein each occurrence of R<sup>6</sup> is independently halogen, CN, NO<sub>2</sub>, or U<sub>n</sub>R', or two occurrences of R<sup>6</sup>, or R' and R<sup>6</sup>, taken together with the atoms to which they are bound, form an optionally substituted 3-6-membered cycloalkyl, heterocyclyl, aryl or heteroaryl ring; and

Ar<sup>1</sup> is a 5-8 membered saturated, partially unsaturated, or fully unsaturated monocyclic ring having 0-3 heteroatoms independently selected from oxygen or sulfur, or an 8-12 membered saturated, partially unsaturated, or fully unsaturated bicyclic ring system having 0-5 heteroatoms independently selected from oxygen or sulfur; wherein Ar<sup>1</sup> is optionally substituted with 0-5 independent occurrences of TR<sup>7</sup>; wherein T is a bond or is a C<sub>1-6</sub> alkylidene chain wherein up to two methylene units of T are optionally and independently replaced by -NR-, -S-, -O-, -CS-, -CO<sub>2</sub>-,

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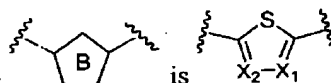
-OCO-, -CO-, -COCO-, -CONR-, -NRCO-, -NRCO<sub>2</sub>-, -SO<sub>2</sub>NR-, -NRSO<sub>2</sub>-,  
 -CONRNR-, -NRCONR-, -OCONR-, -NRNR-, -NRSO<sub>2</sub>NR-, -SO-, or -SO<sub>2</sub>;

Ar<sup>2</sup> is a 5-8 membered saturated, partially unsaturated, or fully unsaturated monocyclic ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, or an 8-12 membered saturated, partially unsaturated, or fully unsaturated bicyclic ring system having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur; wherein Ar<sup>2</sup> is optionally substituted with 0-5 independent occurrences of TR<sup>7</sup>; wherein T is a bond or is a C<sub>1</sub>-C<sub>6</sub> alkylidene chain wherein up to two methylene units of T are optionally and independently replaced by -NR-, -S-, -O-, -CS-, -CO<sub>2</sub>-, -OCO-, -CO-, -COCO-, -CONR-, -NRCO-, -NRCO<sub>2</sub>-, -SO<sub>2</sub>NR-, -NRSO<sub>2</sub>-, -CONRNR-, -NRCONR-, -OCONR-, -NRNR-, -NRSO<sub>2</sub>NR-, -SO-, or -SO<sub>2</sub>; and

each occurrence of R<sup>7</sup> is independently R', halogen, NO<sub>2</sub>, or CN;

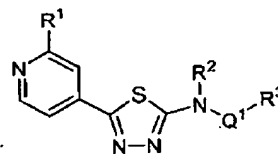
provided that:

D) for compounds described where



is  $X_2-X_1$ , one or more of, or all

of the following conditions apply:



A) for compounds having the structure:

i) when R<sup>1</sup> is Cl, and R<sup>2</sup> is -CH(CH<sub>3</sub>)COOCH<sub>3</sub> or hydrogen, then Q<sup>1</sup>-R<sup>3</sup> is not -CO(unsubstituted phenyl), -CO(unsubstituted 2-furyl), or -COCH<sub>2</sub>(unsubstituted phenyl);

ii) when R<sup>1</sup> is hydrogen, R<sup>2</sup> is hydrogen, and Q<sup>1</sup> is -CO-, then R<sup>3</sup> is

not:

a) phenyl substituted with 4-O(CH<sub>2</sub>)<sub>4-7</sub>CH<sub>3</sub> or 4-(CH<sub>2</sub>)<sub>4-7</sub>CH<sub>3</sub>;

b) phenyl substituted with 2-Cl, 4-NO<sub>2</sub>, 4-Cl, 2-Br, 3-Br, 3-I, 3-CH<sub>3</sub>, 4-OCH<sub>3</sub>, 3-NC<sub>2</sub>, or 4-I;

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c) 2,6-OCH<sub>3</sub>-phenyl.

d) (5-Cl, 3-CH<sub>3</sub>, 1-phenyl)-pyrazol-4-yl; or

e) 4-OnBu-phenyl, -CH<sub>2</sub>O(2-F-phenyl), -(CH<sub>2</sub>)<sub>2</sub>phenyl, furan-2-yl, thiophen-2-yl, 4-CH<sub>3</sub>-phenyl, -CH<sub>2</sub>O(2-CH<sub>3</sub>-phenyl), 3-OCH<sub>3</sub>-phenyl, 2-(2,5-dimethoxyphenyl)quinolin-4-yl, -NH-(4-Cl-phenyl), -NH-(3,4-dichlorophenyl), (2-CO<sub>2</sub>H, 3-NO<sub>2</sub>)-phenyl, 3,5-dimethyl-oxazol-4-yl, -CH=CH-phenyl, 4-F-phenyl, C(CH<sub>3</sub>)<sub>2</sub>O-(4-Cl-phenyl), -NH(3-Cl-phenyl), -NHphenyl, unsubstituted phenyl, 3,4,5-OCH<sub>3</sub>-phenyl, 4-NO<sub>2</sub>-phenyl, 4-cyclopentoxy-phenyl, -(CH<sub>2</sub>)<sub>3</sub>phenyl, -(tricyclo[3.3.1.1<sup>3,7</sup>]decan-1-yl, -CH<sub>2</sub>O-(3-CH<sub>3</sub>-phenyl), 3-NO<sub>2</sub>-phenyl, -cyclopropyl-(4-tert-butyl-phenyl), 2,3-OCH<sub>3</sub>-phenyl, 1,3-benzodioxo-5-yl, -CH<sub>2</sub>-O-(4-F-phenyl), or 3-Br-phenyl;

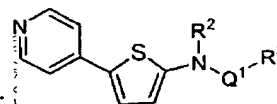
iii) when R<sup>1</sup> is hydrogen, R<sup>2</sup> is hydrogen, and Q<sup>1</sup> is -CSNH-, then R<sup>3</sup> is not 2,3,4,6-tetra-O-acetyl-β-D-glucopyranosyl;

iv) when R<sup>1</sup> is hydrogen, R<sup>2</sup> is hydrogen, and Q<sup>1</sup> is SO<sub>2</sub>, then R<sup>3</sup> is not unsubstituted phenyl, unsubstituted benzyl, unsubstituted naphthyl, phenyl substituted with para-NHCOCH<sub>3</sub>, para-NH<sub>2</sub>, or para-CH<sub>3</sub>; and

v) when R<sup>1</sup> is hydrogen, R<sup>2</sup> is -CH<sub>2</sub>CH=CH<sub>2</sub>, and Q<sup>1</sup> is CO, then R<sup>3</sup> is not 4-OCH<sub>3</sub>-phenyl, unsubstituted naphthyl, -NH-(4-OCH<sub>3</sub>-phenyl), 3,5-OCH<sub>3</sub>-phenyl, -CH<sub>2</sub>Ophenyl, -CH<sub>2</sub>-thiophen-2-yl, or -CH(phenyl)(CH<sub>2</sub>CH<sub>3</sub>); and

vi) when R<sup>1</sup> is hydrogen, R<sup>2</sup> is CH<sub>2</sub>CH<sub>3</sub>, and Q<sup>1</sup> is CO, then R<sup>3</sup> is not 2,4-Cl-phenyl; and

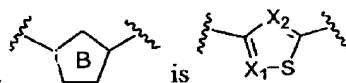
B) for compounds having the structure:



, when R<sup>2</sup> is hydrogen or CH<sub>3</sub>, and Q<sup>1</sup> is -CO-, then R<sup>3</sup> is not -OCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>phenyl;

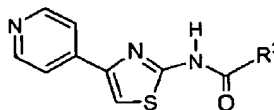
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II) for compounds described where



is , one or more of, or

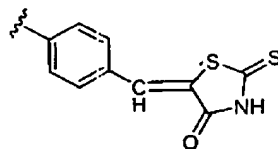
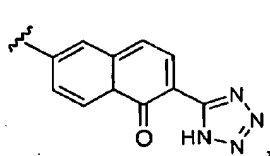
all of the following conditions apply:



A) for compounds having the structure:

i) when  $R^3$  is  $Q^2-Ar^1$ , and  $Q^2$  is a bond then  $Ar^1$  is not any one or more of the following: unsubstituted phenyl or phenyl substituted with 2-Br; 2-Cl; 2-I; 2,6-F; 3,5-OCH<sub>3</sub>; 3,4,5-OCH<sub>3</sub>; 2,4-OCH<sub>3</sub>; 3,4-CH<sub>3</sub>; 2,5-Cl; 3,4-OCH<sub>3</sub>; 2-Cl; 5-NO<sub>2</sub>; 3,5-Cl; 3-O(CH<sub>2</sub>)<sub>4</sub>CH<sub>3</sub>; 3-O-n-butyl; 3-CF<sub>3</sub>; 3-OCH<sub>3</sub>; 3-Br; 3-NO<sub>2</sub>; 3-CH<sub>3</sub>; 3-O-phenyl; 3-Cl; 4-N(CH<sub>3</sub>)<sub>2</sub>; 4-N(CH<sub>2</sub>CH<sub>3</sub>)<sub>2</sub>; 4-SO<sub>2</sub>N(R')<sub>2</sub>; 4-CN; 4-COOCH<sub>3</sub>; 4-C(O)phenyl; 4-phenyl; 4-tert-butyl; 4-O-phenyl; 4-O-isopropyl; 4-OCH<sub>3</sub>; 4-OCH<sub>2</sub>CH<sub>3</sub>; 4-O-n-butyl; 4-Cl; 4-Br; 4-F; 4-CH<sub>3</sub>; 4-NO<sub>2</sub>; 4-Cl; 3-NO<sub>2</sub>; 4-morpholino; 3-NO<sub>2</sub>; 2,5-dioxopyrrolidinyl, or 4-piperidinyl; and

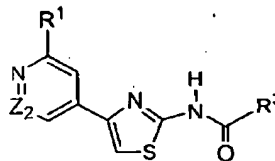
ii)  $R^3$  is not any one or more of the following groups:



, -CH=CH(thiophen-2-yl), -

CH=CH-unsubstituted phenyl, -CH<sub>2</sub>(3-NHCOPh-phenyl), -6-bromo-2-(4-ethylphenyl)-4-quinolinyl, -CH<sub>2</sub>-pyrrolidine, unsubstituted cyclohexyl, unsubstituted benzyl, unsubstituted furan-2-yl, -CH=CH(3-NO<sub>2</sub>-phenyl), -CH=CH(4-NO<sub>2</sub>-phenyl), -CH<sub>2</sub>-naphthyl, unsubstituted naphthyl, unsubstituted thiophene, unsubstituted cyclopropyl, 1,4-benzodioxin, 2-oxo-1-benzopyran, 4-oxo-1-benzopyran, 2-thienyl-quinolin-4-yl, 3-chloro-benzo[b]thiophen-2-yl, 5-Br-(thiophen-2-yl), 5-Cl-(thiophen-2-yl), 5-NO<sub>2</sub>-(thiophen-2-yl), 5-NO<sub>2</sub>-(furan-2-yl), 2,5-Cl-(thiophen-3-yl), -CH=CH-(5-NO<sub>2</sub>-thiophen-2-yl), 5-NO<sub>2</sub>-(benzothiophen-2-yl), 3-OCH<sub>3</sub>-(naphth-2-yl), -CH<sub>2</sub>O(2,4-Cl-phenyl), -(CH<sub>2</sub>)<sub>2</sub>S-phenyl, 2-phenyl-quinolin-4-yl, -CH<sub>2</sub>O(4-Cl-phenyl), -CH<sub>2</sub>CH<sub>2</sub>-3-(4-Cl-phenyl)-1-phenyl-1-H-pyrazol-4-yl, or -CH<sub>2</sub>(1,3-dioxoisindole); and

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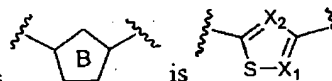


B) for compounds having the structure:

i) when  $R^1$  is Cl, and  $X_1$  is C-Cl, then  $R^3$  is not  $\text{NHSO}_2$ -(2- $\text{CF}_3$ -phenyl) or  $\text{NHSO}_2$ -(2,6-dimethoxy-phenyl);

ii) when  $R^1$  is  $\text{CH}_3$ , and  $X_1$  is C- $\text{CH}_3$ , then  $R^3$  is not an optionally substituted indole or optionally substituted dihydroindole; and

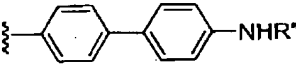
C) for compounds of general formula I, when  $Z_1$ ,  $Z_2$  and  $Z_3$  are each CH,  $R^1$  is H,  $X^1$  is CH and  $X_2$  is C- $\text{COOCH}_3$ , then  $R^3$  is not 2-(4-ethyl-phenyl)-6-bromo-quinolin-4-yl; and



III) for compounds described above where is , one or more of, or all of the following conditions apply:

A) when  $Z^1$ ,  $Z^2$  and  $Z^3$  are each CH,  $X^2$  is N,  $X^1$  is CH,  $Q^1$  is  $-\text{CONR}-$ , and  $R^2$  is hydrogen or  $-\text{CH}_3$ , then  $R^3$  is not optionally substituted pyridyl, optionally substituted thiazol-4-yl,  $-\text{CH}_2$ pyridyl, benzimidazol-4-yl, quinolin-2-yl, 1-bromo-isoquinolin-3-yl, benzthiazol-2-yl, optionally substituted 5,6,7,8-tetrahydro-naphthyridin-2-yl, or phenyl substituted with  $-\text{CH}_2$ piperidinyl; and

B) when  $Z^1$ ,  $Z^2$  and  $Z^3$  are each CH,  $X^2$  is N,  $X^1$  is CH,  $Q^1$  is  $\text{SO}_2$ , and  $R^2$  is

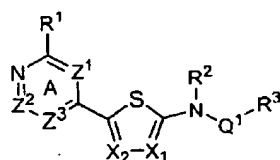
hydrogen, then  $R^3$  is not phenyl substituted with  where  $R^*$  is hydrogen or  $-\text{COCH}_3$ ;

C) when  $Z^1$ ,  $Z^2$  and  $Z^3$  are each CH,  $X_1$  is C- $\text{CO}_2\text{H}$ ,  $X^2$  is CH,  $R^2$  is hydrogen, and  $Q^1$  is  $\text{SO}_2$ , then  $R^3$  is not 2- $\text{CH}_3$ -phenyl; and

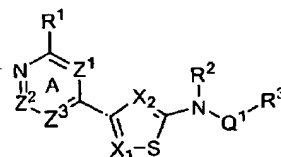
D) when  $Z^1$ ,  $Z^2$  and  $Z^3$  are each CH,  $X_1$  is CH,  $X^2$  is N,  $R^2$  is hydrogen, and  $Q^1$  is CO, then  $R^3$  is not 5-methoxy-6-trifluoromethyl-1H-indole.

2. (Original) The compound of claim 1, wherein the compound has one of the structures:

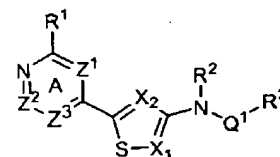
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I-A

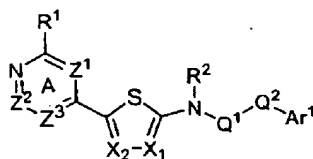


I-B

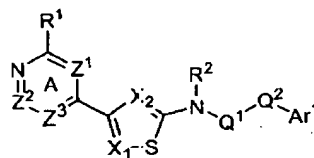


or I-C.

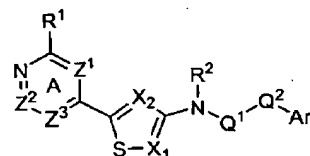
3. (Original) The compound of claim 1, wherein  $R^3$  is  $Q^2-Ar^1$  and compounds have one of formulas I-A-i, I-B-i, or I-C-i:



I-A-i



I-B-i



I-C-i.

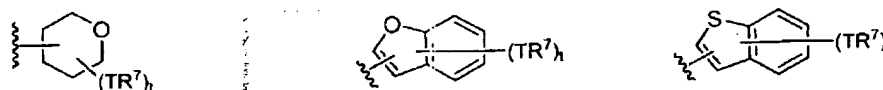
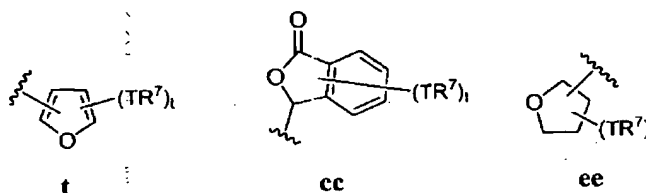
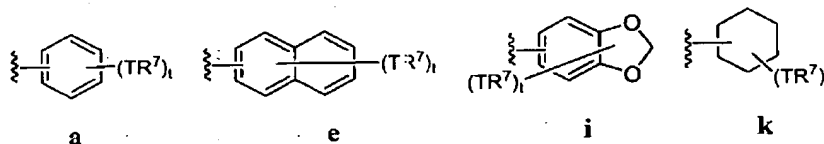
4. (Original) The compound of claim 3, wherein  $R^2$  is hydrogen, or is  $U_nR'$ , where  $n$  is 1, and  $U$  is a  $C_{1-6}$  alkylidene chain wherein one or two methylene units are optionally and independently replaced by O, NR, S, or C(O).

5. (Original) The compound of claim 3, wherein  $U$  is  $-CH_2-$ ,  $-CH_2CH_2-$ ,  $-CH_2CH_2CH_2-$ ,  $-CH_2CH_2CH_2CH_2-$ ,  $-CH_2O-$ ,  $-CH_2S-$ ,  $-CH_2NR-$ ,  $-CH_2CH_2O-$ ,  $-CH_2CH_2S-$ ,  $-CH_2CH_2NR-$ ,  $-CH_2CH_2CH_2O-$ ,  $-CH_2CH_2CH_2S-$ ,  $-CH_2CH_2CH_2NR-$ ,  $-CH_2CH_2CH_2CH_2O-$ ,  $-CH_2CH_2CH_2CH_2S-$ ,  $-CH_2CH_2CH_2CH_2NR-$ ,  $-CH_2CH_2OCH_2CH_2-$ ,  $-(CH_2)_4NHCH_2-$ ,  $-(CH_2)_3NHCH_2CH_2-$ , or  $-CH_2CH_2NHCH_2CH_2-$ , and preferred  $R'$  groups are hydrogen,  $C_1$ - $C_4$ alkyl, optionally substituted tetrahydropyranyl, pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl, thiomorpholinyl, pyridinyl, phenyl, or cyclohexyl, or  $R$  and  $R'$ , taken together with the nitrogen atom to which they are bound, form an optionally substituted 5- or 6-membered heterocyclic ring.

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6. (Original) The compound of claim 3, wherein  $Q^1$  is  $-C(O)-$  or  $-SO_2NR-$ .
7. (Original) The compound of claim 3, wherein  $Q^2$  is a direct bond, or is  $-(CHR^6)_q-$ ,  $-(CHR^6)_qO-$ ,  $-(CHR^6)_qS-$ ,  $-(CHR^6)_qS(O)_2-$ ,  $-(CHR^6)_qS(O)-$ ,  $-(CHR^6)_qNR-$ , or  $-(CHR^6)_qC(O)-$ , wherein  $q$  is 0, 1, 2, or 3, and  $R^6$  is  $R'$ ,  $-N(R)(R')$ ,  $-(CH_2)_{1-4}N(R)(R')$ ,  $-OR'$ ,  $-(CH_2)_{1-4}OR'$ ,  $-NR(CH_2)_{1-4}N(R)(R')$ ,  $-NR(CH_2)_{1-4}SO_2R'$ ,  $-NR(CH_2)_{1-4}COOR'$ , or  $-NR(CH_2)_{1-4}COR'$ , or two occurrences of  $R^6$ , taken together with the atoms to which they are bound, form an optionally substituted 3-6-membered saturated, partially unsaturated, or fully unsaturated ring
8. (Original) The compound of claim 7, wherein  $R^6$  is  $CH_2OH$ ,  $CH_2CH_2OH$ ,  $OH$ ,  $OMe$ ,  $OEt$ ,  $NH_2$ ,  $NH(Me)$ ,  $NH(Et)$ ,  $N(Me)(Me)$ ,  $CH_2NH_2$ ,  $CH_2CH_2NH_2$ ,  $NHCO_2t$ -butyl, phenyl, cyclopentyl, methyl, ethyl, isopropyl, cyclopropyl,  $NH(CH_2)_3NH_2$ ,  $NH(CH_2)_2NH_2$ ,  $NH(CH_2)_2NHEt$ ,  $NHCH_2$ pyridyl,  $NHSO_2$ phenyl,  $NHC(O)CH_2C(O)Ot$ -butyl,  $NHC(O)CH_2NH_3$ , and  $NHCH_2$ -imidazol-4-yl.

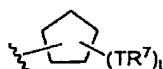
9. (Previously presented) The compound of claim 3, wherein  $Ar^1$  is:





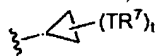
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ii



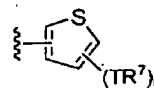
mm

jj



oo

kk



pp

wherein  $t$  is 0, 1, 2, 3, 4 or 5, and wherein any  $Ar^1$  is bonded to  $Q^2$  through any substitutable ~~nitrogen~~ or carbon atom, and wherein one or more hydrogen atoms on any substitutable ~~nitrogen~~ or carbon atom is substituted with one or more independent occurrences of  $TR^7$ .

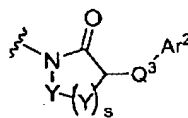
10. (Previously presented) The compound of claim 9, wherein  $Ar^1$  is a, e, i, k, cc, jj, or pp.

11. (Original) The compound of claim 9, wherein  $T$  is a bond or is an optionally substituted  $C_{1-6}$  alkylidene chain wherein one or two methylene units are optionally and independently replaced by  $-O-$ ,  $-NR-$ ,  $-S-$ ,  $-SC_2-$ ,  $-COO-$ ,  $-CO-$ ,  $-OSO_2-$ ,  $-NRSO_2$ ,  $-CONR-$ , or  $-SO_2NR-$ , and  $R^7$  is  $R'$  or halogen.

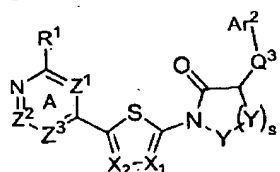
12. (Original) The compound of claim 9, wherein each occurrence of  $TR^7$  is independently  $-C_{1-3}alkyl$ ,  $-OR'$ ,  $-SR'$ ,  $-CF_3$ ,  $-OCF_3$ ,  $-SCF_3$ ,  $-F$ ,  $-Cl$ ,  $I$ ,  $-Br$ ,  $-COOR'$ ,  $-COR'$ ,  $-O(CH_2)_4N(R)(R')$ ,  $-O(CH_2)_3N(R)(R')$ ,  $-O(CH_2)_2N(R)(R')$ ,  $-O(CH_2)N(R)(R')$ ,  $-O(CH_2)_4CON(R)(R')$ ,  $-O(CH_2)_3CON(R)(R')$ ,  $-O(CH_2)_2CON(R)(R')$ ,  $-O(CH_2)CON(R)(R')$ ,  $-C(O)N(R)(R')$ ,  $-(CH_2)_4OR'$ ,  $-(CH_2)_3OR'$ ,  $-(CH_2)_2OR'$ ,  $-CH_2OR'$ , optionally substituted phenyl or benzyl,  $-N(R)(R')$ ,  $-(CH_2)_4N(R)(R')$ ,  $-(CH_2)_3N(R)(R')$ ,  $-(CH_2)_2N(R)(R')$ ,  $-(CH_2)N(R)(R')$ , or  $SO_2N(R)(R')$ ,  $NRSO_2R'$ ,  $CON(R)(R')$ , or  $-OSO_2R'$ .

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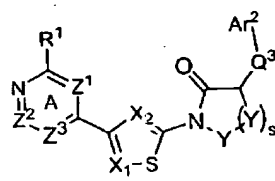
13. (Original) The compound of claim 1, wherein  $R^3$  is  $Q^2-Ar^1$ , or  $R^2$  and  $Q^1-R^3$ , taken



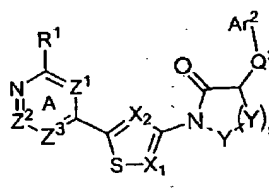
together with the nitrogen atom, form the cyclic group: , where  $s$  is 1 or 2, each occurrence of  $Y$  is independently, as valency and stability permit,  $-CO-$ ,  $-CS-$ ,  $-SO_2-$ ,  $-O-$ ,  $-S-$ ,  $-NR^5-$ , or  $-C(R^5)_2-$ , and  $R^5$  is  $U_nR'$ , and compounds of formula I-A-ii, I-B-ii, and I-C-ii are provided:



I-A-ii



I-B-ii



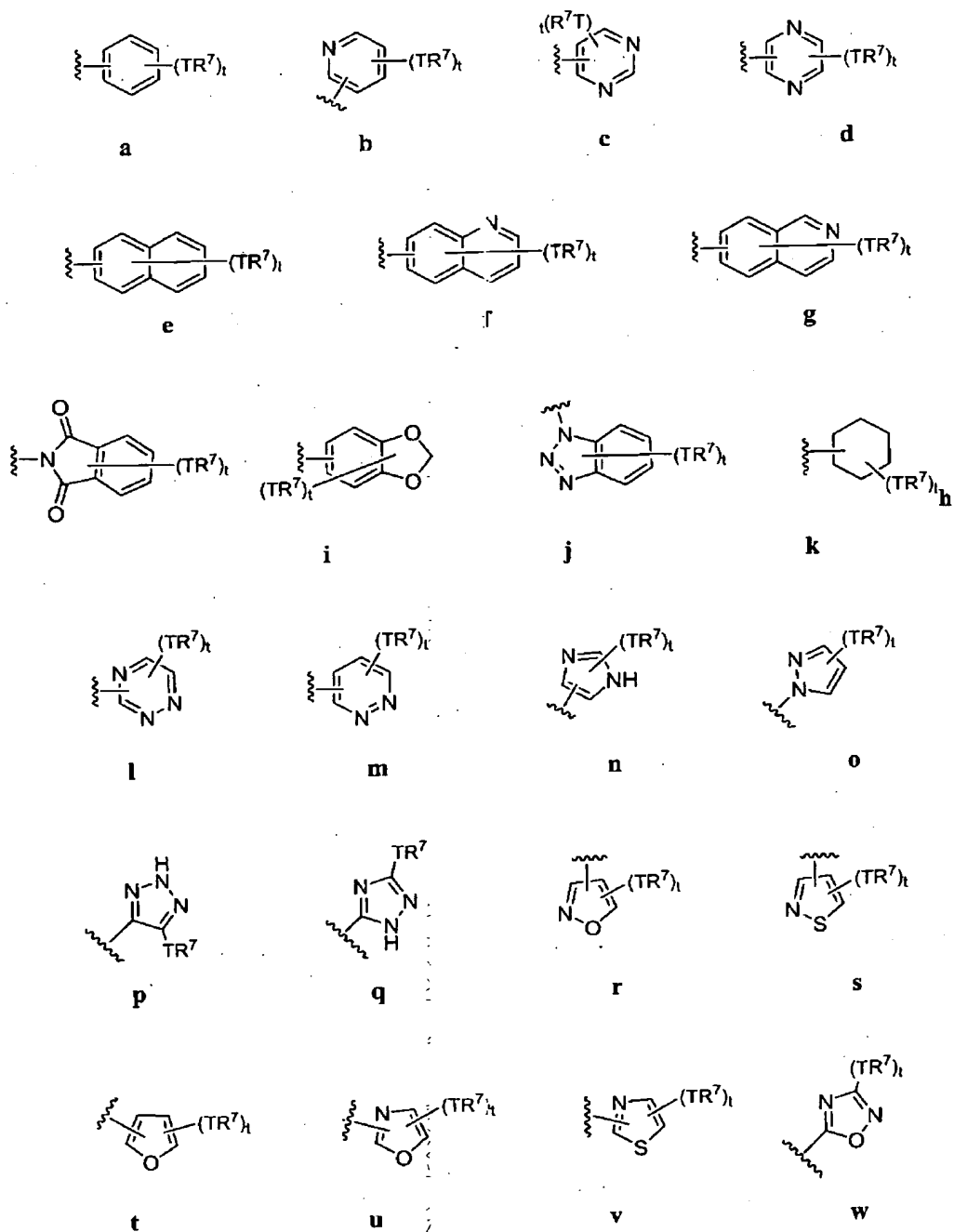
I-C-ii.

14. (Original) The compound of claim 13, wherein  $Q^3$  is a direct bond, or is  $-(CHR^6)_q-$ ,  $-(CHR^6)_qO-$ ,  $-(CHR^6)_qS-$ ,  $-(CHR^6)_qS(O)_2-$ ,  $-(CHR^6)_qS(O)-$ ,  $-(CHR^6)_qNR-$ , or  $-(CHR^6)_qC(O)-$ , wherein  $q$  is 0, 1, 2, or 3, and  $R^6$  is  $R'$ ,  $-N(R)(R')$ ,  $-(CH_2)_{1-4}N(R)(R')$ ,  $-OR'$ ,  $-(CH_2)_{1-4}OR'$ ,  $-NR(CH_2)_{1-4}N(R)(R')$ ,  $-NR(CH_2)_{1-4}SO_2R'$ ,  $-NR(CH_2)_{1-4}COOR'$ , or  $-NR(CH_2)_{1-4}COR'$ , or two occurrences of  $R^6$ , taken together with the atoms to which they are bound, form an optionally substituted 3-6-membered saturated, partially unsaturated, or fully unsaturated ring.

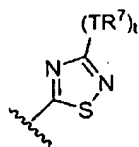
15. (Original) The compound of claim 14, wherein  $R^6$  is  $CH_2OH$ ,  $CH_2CH_2OH$ ,  $OH$ ,  $OMe$ ,  $OEt$ ,  $NH_2$ ,  $NH(Me)$ ,  $NH(Et)$ ,  $N(Me)(Me)$ ,  $CH_2NH_2$ ,  $CH_2CH_2NH_2$ ,  $NHCO_2t$ -butyl, phenyl, cyclopentyl, methyl, ethyl, isopropyl, cyclopropyl,  $NH(CH_2)_3NH_2$ ,  $NH(CH_2)_2NH_2$ ,  $NH(CH_2)_2NH_2$ ,  $NHCH_2$ pyridyl,  $NHSO_2$ phenyl,  $NHC(O)CH_2C(O)Ot$ -butyl,  $NHC(O)CH_2NH_3$ , and  $NHCH_2$ -imidazol-4-yl.

16. (Original) The compound of claim 13, wherein  $Ar^2$  is:

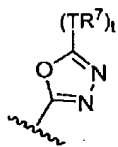
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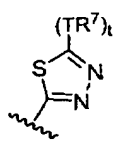
Applicants: Jingrong Cao et al.  
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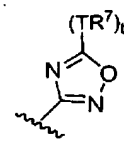
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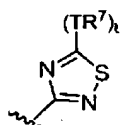
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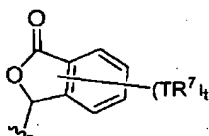
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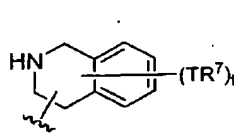
aa



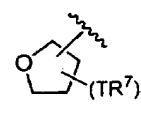
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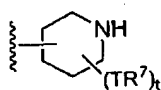
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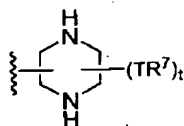
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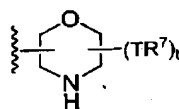
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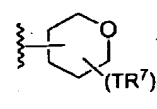
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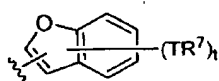
gg



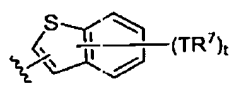
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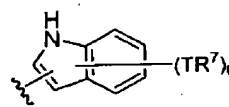
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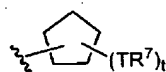
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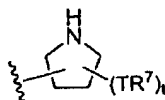
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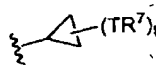
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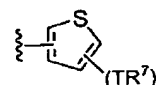
mm



nn



oo

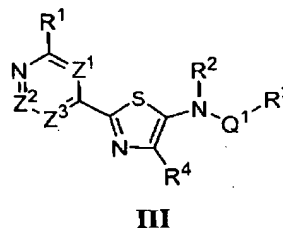
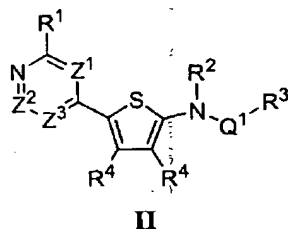


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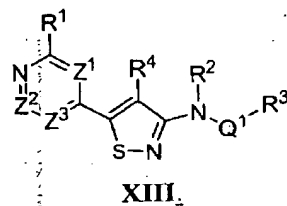
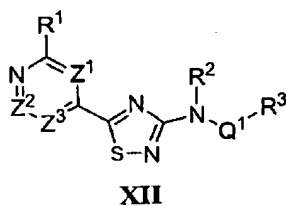
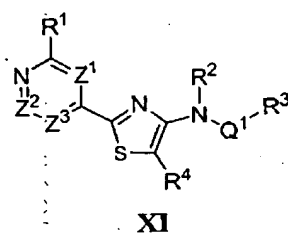
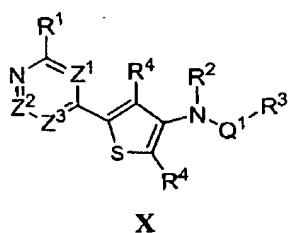
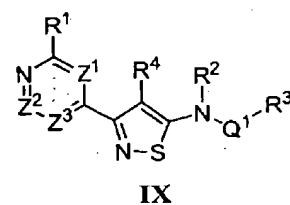
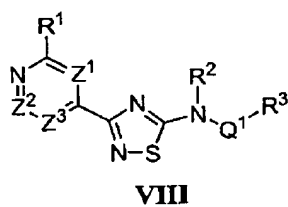
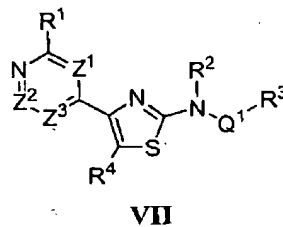
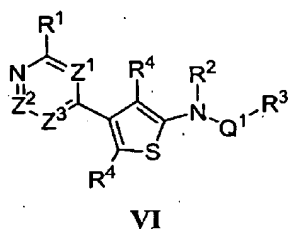
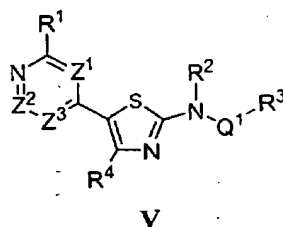
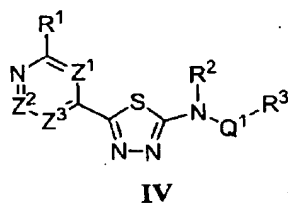
wherein  $t$  is 0, 1, 2, 3, 4 or 5, and wherein any  $Ar^2$  is bonded to  $Q^3$  through any substitutable nitrogen or carbon atom, and wherein one or more hydrogen atoms on any substitutable nitrogen or carbon atom is substituted with one or more independent occurrences of  $TR^7$ .

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17. (Original) The compound of claim 16, wherein  $Ar^2$  is a, b, c, g, h, i, j, k, n, r, cc, dd, ff, jj, ll, or pp.
18. (Original) The compound of claim 16, wherein T is a bond or is an optionally substituted  $C_{1-6}$  alkylidene chain wherein one or two methylene units are optionally and independently replaced by -O-, -NR-, -S-, -SO<sub>2</sub>-, -COO-, -CO-, -OSO<sub>2</sub>-, -NRSO<sub>2</sub>-, -CONR-, or -SO<sub>2</sub>NR-, and  $R^7$  is R' or halogen.
19. (Original) The compound of claim 16, wherein each occurrence of  $TR^7$  is independently -C<sub>1-3</sub>alkyl, -OR', -SR', -CF<sub>3</sub>, -CCF<sub>3</sub>, -SCF<sub>3</sub>, -F, -Cl, I, -Br, -COOR', -COR', -O(CH<sub>2</sub>)<sub>4</sub>N(R)(R'), -O(CH<sub>2</sub>)<sub>3</sub>N(R)(R'), -O(CH<sub>2</sub>)<sub>2</sub>N(R)(R'), -O(CH<sub>2</sub>)N(R)(R'), -O(CH<sub>2</sub>)<sub>4</sub>CON(R)(R'), -O(CH<sub>2</sub>)<sub>3</sub>CON(R)(R'), -O(CH<sub>2</sub>)<sub>2</sub>CON(R)(R'), -O(CH<sub>2</sub>)CON(R)(R'), -C(O)N(R)(R'), -(CH<sub>2</sub>)<sub>4</sub>OR', -(CH<sub>2</sub>)<sub>3</sub>OR', -(CH<sub>2</sub>)<sub>2</sub>OR', -CH<sub>2</sub>OR', optionally substituted phenyl or benzyl, -N(R)(R'), -(CH<sub>2</sub>)<sub>4</sub>N(R)(R'), -(CH<sub>2</sub>)<sub>3</sub>N(R)(R'), -(CH<sub>2</sub>)<sub>2</sub>N(R)(R'), -(CH<sub>2</sub>)N(R)(R'), or SO<sub>2</sub>N(R)(R'), NRSO<sub>2</sub>R', CON(R)(R'), or -OSO<sub>2</sub>R'.
20. (Original) The compound of claim 13, wherein  $R^5$  is hydrogen, (CH<sub>2</sub>)<sub>3</sub>OR', (CH<sub>2</sub>)<sub>2</sub>OR', (CH<sub>2</sub>)OR', (CH<sub>2</sub>)<sub>3</sub>N(R')<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>N(R')<sub>2</sub>, (CH<sub>2</sub>)N(R')<sub>2</sub>, or C<sub>1-4</sub>aliphatic.
21. (Currently amended) The compound of claim 1, wherein  $X^1$  and  $X^2$  are each independently CR<sup>4</sup> or N, and compounds have one of formulas II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, or XIII:

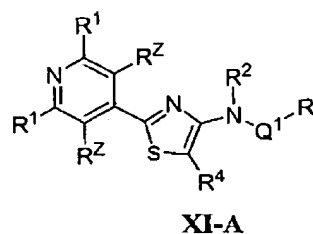
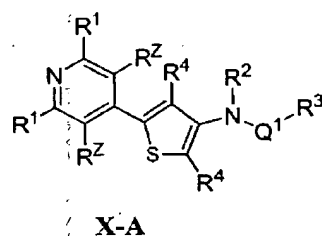
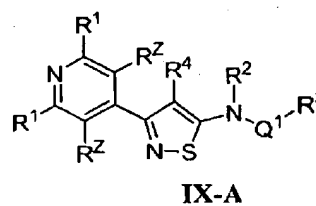
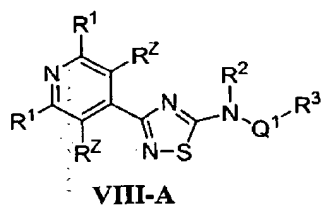
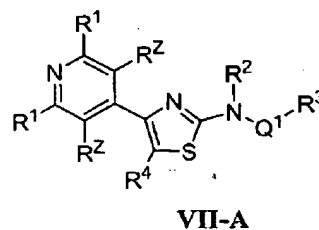
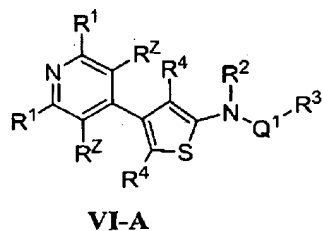
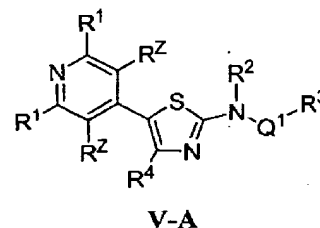
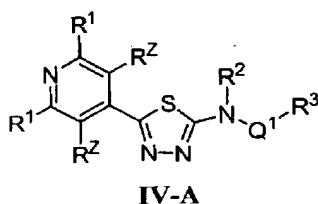
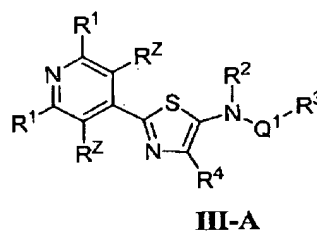
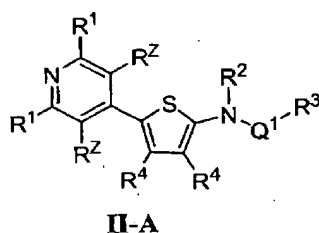


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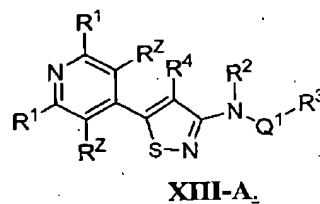
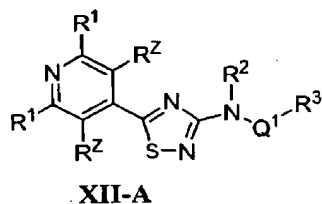


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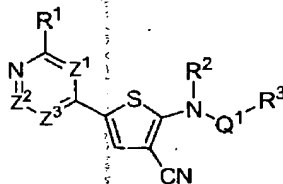
22. (Currently amended) The compound of claim 21, wherein compounds have one of formulas II-A, III-A, IV-A, V-A, VI-A, VII-A, VIII-A, IX-A, X-A, XI-A, XII-A, or XIII:



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23. (Original) The compound of claim 1, wherein each occurrence of  $R^1$  is independently hydrogen, halogen, optionally substituted  $C_1$ - $C_4$ aliphatic, OR, SR, or  $N(R)_2$ .
24. (Previously presented) The compound of claim 23, wherein each occurrence of  $R^1$  is independently hydrogen, halogen,  $-CH_3$ ,  $-CH_2CH_3$ ,  $-OH$ ,  $-OCH_3$ ,  $-SCH_3$ ,  $-NH_2$ ,  $-N(CH_3)_2$ ,  $-N(CH_2CH_3)_2$ ,  $-NH(CH_2)_2NHCH_3$ ,  $-NH(\text{cyclopropyl})$ ,  $-NH(CH_2)\text{cyclopropyl}$ , or  $-NH(CH_2)_2N(CH_3)_2$ .
25. (Original) The compound of claim 1, wherein each occurrence of  $R^Z$  is independently hydrogen, halogen,  $C_1$ - $C_4$ aliphatic, OH, OR', or  $N(R)(R')$ .
26. (Original) The compound of claim 25, wherein each occurrence of  $R^Z$  is independently hydrogen, halogen, Me, OH, OMe,  $NH_2$ , or  $N(Me)_2$ .
27. (Original) The compound of claim 1, wherein  $R^4$  groups are each independently hydrogen,  $C_1$ - $C_4$ aliphatic, CN, COR,  $C(=O)OR$ ,  $C(=O)N(R)_2$ , or halogen.
28. (Currently amended) The compound of claim 1, wherein one occurrence of  $R^4$  is CN and compounds have the general structure II-a:

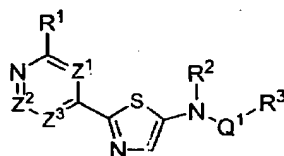




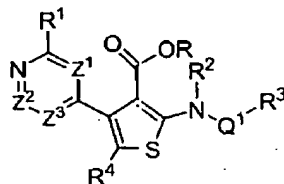
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**II-a.**

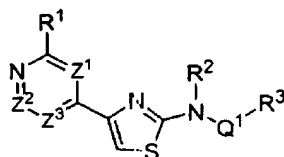
29. (Currently amended) The compound of claim 1, wherein  $R^4$  is hydrogen and compounds have the general structure **III-a**:

**III-a.**

30. (Currently amended) The compound of claim 1, wherein one occurrence of  $R^4$  is hydrogen and the other occurrence of  $R^4$  is  $-COOR$  and compounds have the general structure **VI-a**:

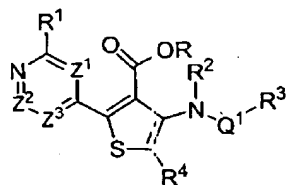
**VI-a.**

31. (Currently amended) The compound of claim 1, wherein  $R^4$  is hydrogen and compounds have the general structure **VII-a**:

**VII-a.**

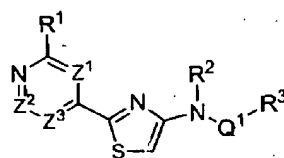
32. (Currently amended) The compound of claim 1, wherein one occurrence of  $R^4$  is hydrogen and the other occurrence of  $R^4$  is  $C(=O)OR$  and compounds have the general structure **X-a**:

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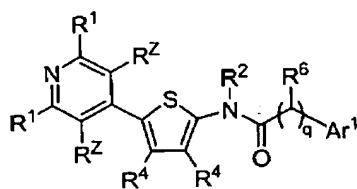
X-a.

33. (Currently amended) The compound of claim 1, wherein R<sup>4</sup> is hydrogen and compounds have the general structure XI-a:

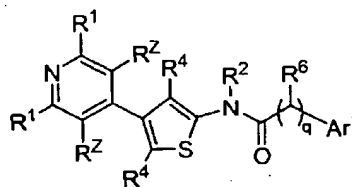


XI-a.

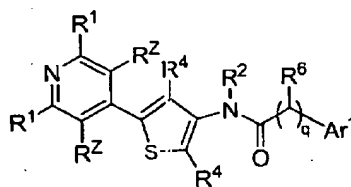
34. (Currently amended) The compound of claim 9, wherein Q<sup>1</sup> is -CO-, Q<sup>2</sup> is CHR<sup>6</sup>, q is 1, 2, or 3, and compounds have one of formulas XIV, XV, or XVI:



XIV



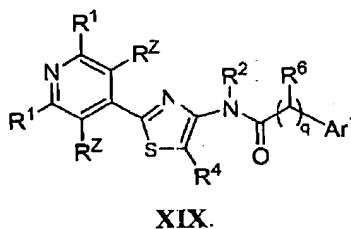
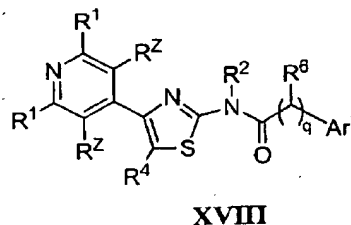
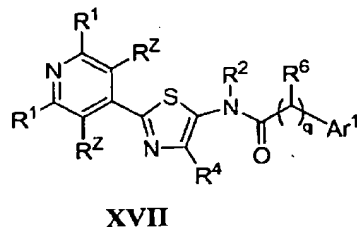
XV



XVI.

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35. (Currently amended) The compound of claim 9, wherein  $Q^1$  is  $-CO-$ ,  $Q^2$  is  $CHR^6$ ,  $q$  is 1, 2 or 3, and compounds have one of formulas XVII, XVIII, or XIX:



36. (Previously presented) The compound of claims 34 or 35, wherein compound variables are selected from one of more of the following groups:

- a) each occurrence of  $R^1$  is independently hydrogen, halogen, optionally substituted  $C_1$ - $C_4$ aliphatic, OR, SR, or  $N(R)_2$ ;
- b) each occurrence of  $R^1$  is independently hydrogen, halogen,  $-CH_3$ ,  $-CH_2CH_3$ ,  $-OH$ ,  $-OCH_3$ ,  $-SCH_3$ ,  $-NH_2$ ,  $-N(CH_3)_2$ ,  $-N(CH_2CH_3)_2$ ,  $-NH(CH_2)_2NHCH_3$ ,  $-NH(cyclopropyl)$ ,  $-NH(CH_2)cyclopropyl$ , or  $-NH(CH_2)_2N(CH_3)_2$ ;
- c) each occurrence of  $R^2$  is independently hydrogen, halogen, optionally substituted  $C_1$ - $C_4$ aliphatic, OH,  $O(R')$ , or  $N(R)(R')$ ;
- d) each occurrence of  $R^Z$  is independently hydrogen, halogen, Me, OH, OMe,  $NH_2$ , or  $N(Me)_2$ ;
- e)  $R^2$  is hydrogen, or is  $U_nR'$ , where  $n$  is 1, and  $U$  is  $-CH_2-$ ,  $-CH_2CH_2-$ ,  $-CH_2CH_2CH_2-$ ,  $-CH_2CH_2CH_2CH_2-$ ,  $-CH_2O-$ ,  $-CH_2S-$ ,  $-CH_2NR-$ ,  $-CH_2CH_2O-$ ,  $-CH_2CH_2S-$ ,  $-CH_2CH_2NR-$ ,  $-CH_2CH_2CH_2O-$ ,  $-CH_2CH_2CH_2S-$ ,  $-CH_2CH_2CH_2NR-$ ,  $-CH_2CH_2CH_2CH_2O-$ ,  $-CH_2CH_2CH_2CH_2S-$ ,  $-CH_2CH_2CH_2CH_2NR-$ ,  $-CH_2CH_2OCH_2CH_2-$ ,  $-(CH_2)_4NHCH_2-$ ,  $-(CH_2)_3NHCH_2CH_2-$ , or

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-CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>-, and R' groups are hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl, optionally substituted tetrahydropyranyl, pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl, thiomorpholinyl, pyridinyl, phenyl, or cyclohexyl, or R and R', taken together with the nitrogen atom to which they are bound, form an optionally substituted 5- or 6-membered heterocyclcyl ring;

f) each occurrence of R<sup>4</sup> is independently hydrogen, C<sub>1-6</sub>aliphatic, CN, COR, COOR, CON(R)<sub>2</sub>, or halogen;

g) q is 1, 2, or 3;

h) R<sup>6</sup> is R', -N(R)(R'), -(CH<sub>2</sub>)<sub>1-4</sub>N(R)(R'), -OR', -(CH<sub>2</sub>)<sub>1-4</sub>OR', -NR(CH<sub>2</sub>)<sub>1-4</sub>N(R)(R'), -NR(CH<sub>2</sub>)<sub>1-4</sub>SO<sub>2</sub>R', -NR(CH<sub>2</sub>)<sub>1-4</sub>COOR', or -NR(CH<sub>2</sub>)<sub>1-4</sub>COR', or two occurrences of R<sup>6</sup>, taken together with the atoms to which they are bound, form an optionally substituted 3-6-membered saturated, partially unsaturated, or fully unsaturated ring;

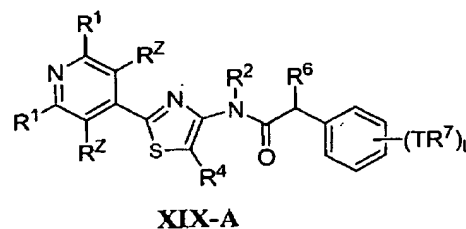
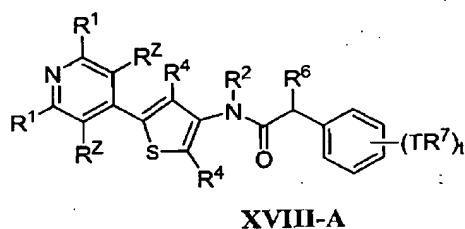
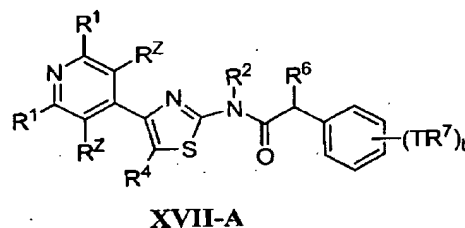
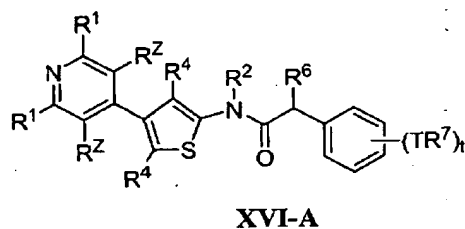
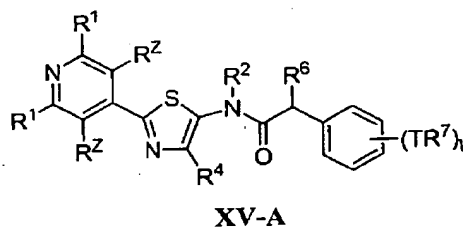
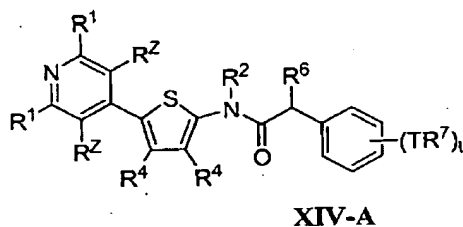
i) R<sup>6</sup> is CH<sub>2</sub>OH, CH<sub>2</sub>CH<sub>2</sub>OH, OH, OMe, OEt, NH<sub>2</sub>, NH(Me), NH(Et), N(Me)(Me), CH<sub>2</sub>NH<sub>2</sub>, CH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>, NHCO<sub>2</sub>t-butyl, phenyl, cyclopentyl, methyl, ethyl, isopropyl, cyclopropyl, NH(CH<sub>2</sub>)<sub>3</sub>NH<sub>2</sub>, NH(CH<sub>2</sub>)<sub>2</sub>NH<sub>2</sub>, NH(CH<sub>2</sub>)<sub>2</sub>NHEt, NHCH<sub>2</sub>pyridyl, NHSO<sub>2</sub>phenyl, NHC(O)CH<sub>2</sub>C(O)Ot-butyl, NHC(O)CH<sub>2</sub>NH<sub>3</sub>, and NHCH<sub>2</sub>-imidazol-4-yl;

j) Ar<sup>1</sup> is ring a, e, i, k, cc, jj, or pp wherein t is 0, 1, 2, or 3, and T is a bond or is an optionally substituted C<sub>1-6</sub> alkylidene chain wherein one or two methylene units are optionally and independently replaced by -O-, -NR-, -S-, -SO<sub>2</sub>-, -COO-, -CO-, -OSO<sub>2</sub>-, -NRSO<sub>2</sub>-, -CONR-, or -SO<sub>2</sub>NR-, and R<sup>7</sup> is R' or halogen; or

k) Ar<sup>1</sup> is ring a, e, i, k, cc, jj, or pp wherein t is 0, 1, 2, or 3, and each occurrence of TR<sup>7</sup> is independently -C<sub>1-3</sub>alkyl, -OR', -SR', -CF<sub>3</sub>, -OCF<sub>3</sub>, -SCF<sub>3</sub>, -F, -Cl, I, -Br, -COOR', -COR', -O(CH<sub>2</sub>)<sub>4</sub>N(R)(R'), -O(CH<sub>2</sub>)<sub>3</sub>N(R)(R'), -O(CH<sub>2</sub>)<sub>2</sub>N(R)(R'), -O(CH<sub>2</sub>)N(R)(R'), -O(CH<sub>2</sub>)<sub>4</sub>CON(R)(R'), -O(CH<sub>2</sub>)<sub>3</sub>CON(R)(R'), -O(CH<sub>2</sub>)<sub>2</sub>CON(R)(R'), -O(CH<sub>2</sub>)CON(R)(R'), -C(O)N(R)(R'), -(CH<sub>2</sub>)<sub>4</sub>OR', -(CH<sub>2</sub>)<sub>3</sub>OR', -(CH<sub>2</sub>)<sub>2</sub>OR', -CH<sub>2</sub>OR', optionally substituted phenyl or benzyl, -N(R)(R'), -(CH<sub>2</sub>)<sub>4</sub>N(R)(R'), -(CH<sub>2</sub>)<sub>3</sub>N(R)(R'), -(CH<sub>2</sub>)<sub>2</sub>N(R)(R'), -(CH<sub>2</sub>)N(R)(R'), -SO<sub>2</sub>N(R)(R'), -NRSO<sub>2</sub>R', -CON(R)(R'), or -OSO<sub>2</sub>R'.

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37. (Previously presented) The compound of claim 34 or 35, q is 1, and Ar<sup>1</sup> is optionally substituted phenyl and compounds of general formula XIV-A through XIX-A are provided:



wherein:

each occurrence of R<sup>1</sup> is hydrogen;

each occurrence of R<sup>2</sup> is hydrogen;

R<sup>2</sup> is hydrogen, or is U<sub>n</sub>R', where n is 1, and U is -CH<sub>2</sub>-, -CH<sub>2</sub>CH<sub>2</sub>-,

-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>-, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>-, -CH<sub>2</sub>O-, -CH<sub>2</sub>S-, -CH<sub>2</sub>NR-, -CH<sub>2</sub>CH<sub>2</sub>O-, -CH<sub>2</sub>CH<sub>2</sub>S-, -

CH<sub>2</sub>CH<sub>2</sub>NR-, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>O-, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>S-, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NR-, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>O-,

-CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>S-, -CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>NR-, -CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>-, -(CH<sub>2</sub>)<sub>4</sub>NHCH<sub>2</sub>-,

-(CH<sub>2</sub>)<sub>3</sub>NHCH<sub>2</sub>CH<sub>2</sub>-, or -CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>-, and R' groups are hydrogen, C<sub>1</sub>-C<sub>4</sub>alkyl,

optionally substituted tetrahydropyranyl, pyrrolidinyl, piperidinyl, piperazinyl, morpholinyl,

thiomorpholinyl, pyridinyl, phenyl, or cyclohexyl, or R and R', taken together with the

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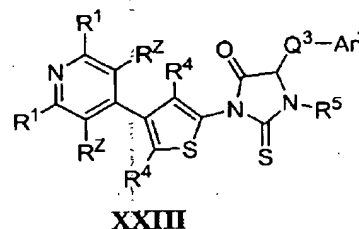
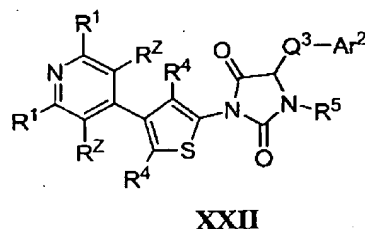
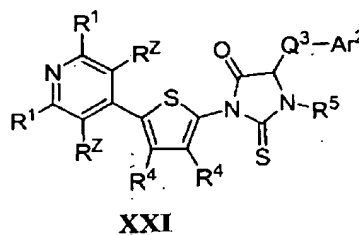
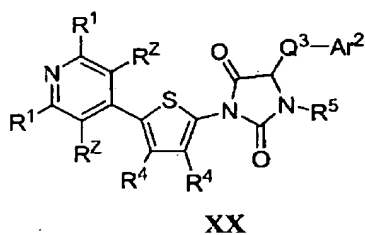
nitrogen atom to which they are bound, form an optionally substituted 5- or 6-membered heterocyclyl ring;

each occurrence of  $R^4$  is independently hydrogen,  $C_{1-6}$ aliphatic, CN, COR, COOR,  $CON(R)_2$ , or halogen;

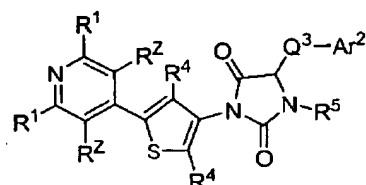
$R^6$  is  $R^1$ ,  $-N(R)(R')$ ,  $-(CH_2)_{1-4}N(R)(R')$ ,  $-OR'$ ,  $-(CH_2)_{1-4}OR'$ ,  $-NR(CH_2)_{1-4}N(R)(R')$ ,  $-NR(CH_2)_{1-4}SO_2R'$ ,  $-NR(CH_2)_{1-4}COOR'$ , or  $-NR(CH_2)_{1-4}COR'$ ; and

$t$  is 0, 1, 2, or 3, and each occurrence of  $TR^7$  is independently  $-C_{1-3}$ alkyl,  $-OR'$ ,  $-SR'$ ,  $-CF_3$ ,  $-OCF_3$ ,  $-SCF_3$ ,  $-F$ ,  $-Cl$ ,  $I$ ,  $-Br$ ,  $-COOR'$ ,  $-COR'$ ,  $-O(CH_2)_4N(R)(R')$ ,  $-O(CH_2)_3N(R)(R')$ ,  $-O(CH_2)_2N(R)(R')$ ,  $-O(CH_2)N(R)(R')$ ,  $-O(CH_2)_4CON(R)(R')$ ,  $-O(CH_2)_3CON(R)(R')$ ,  $-O(CH_2)_2CON(R)(R')$ ,  $-O(CH_2)CON(R)(R')$ ,  $-C(O)N(R)(R')$ ,  $-(CH_2)_4OR'$ ,  $-(CH_2)_3OR'$ ,  $-(CH_2)_2OR'$ ,  $-CH_2OR'$ , optionally substituted phenyl or benzyl,  $-N(R)(R')$ ,  $-(CH_2)_4N(R)(R')$ ,  $-(CH_2)_3N(R)(R')$ ,  $-(CH_2)_2N(R)(R')$ ,  $-(CH_2)N(R)(R')$ ,  $-SO_2N(R)(R')$ ,  $-NRSO_2R'$ ,  $-CON(R)(R')$ , or  $-OSO_2R'$ .

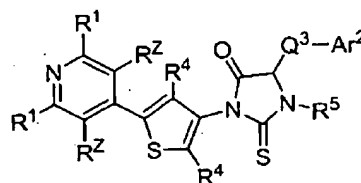
38. (Currently amended) The compound of claim 16, wherein  $R^2$  and  $Q^1-R^3$ , taken together with the atoms to which they are bound form a 5-membered cyclic group, and compounds have the general formula XX through XXV:



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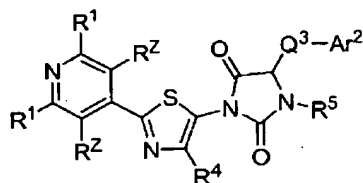


XXIV

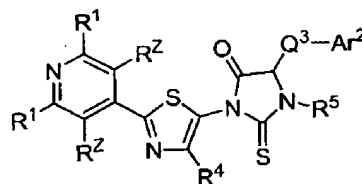


XXV

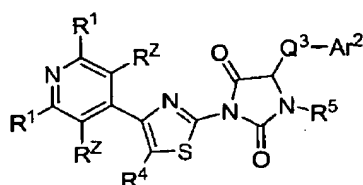
39. (Currently amended) The compound of claim 16,  $R^2$  and  $Q^1-R^3$ , taken together with the atoms to which they are bound form a 5-membered cyclic group, and compounds have the general formula XXVI through XXXI:



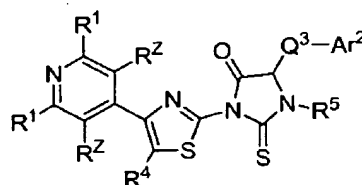
XXVI



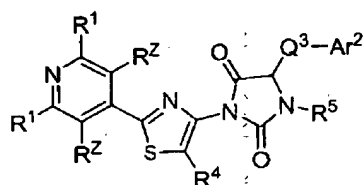
XXVII



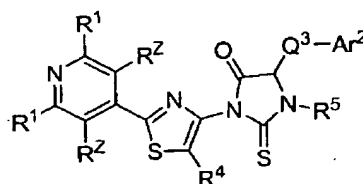
XXVIII



XXIX



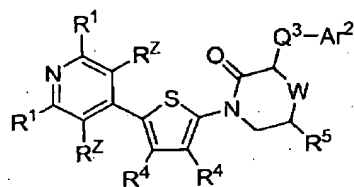
XXX



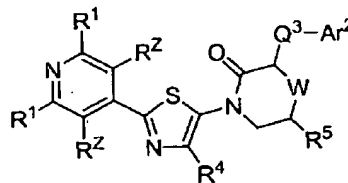
XXXI

40. (Previously presented) The compound of claim 16, wherein  $R^2$  and  $Q^1-R^3$ , taken together with the atoms to which they are bound form a 6-membered cyclic group, and compounds have the general formula XXXII through XXXVII:

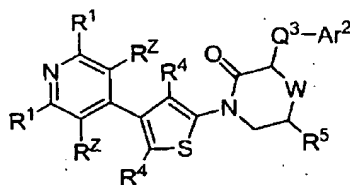
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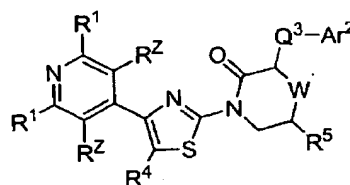
XXXII



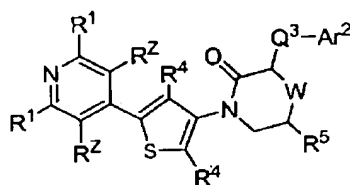
XXXIII



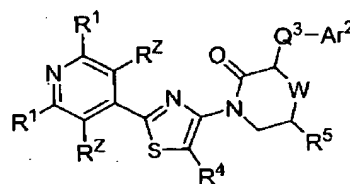
XXXIV



XXXV



XXXVI



XXXVII

wherein W is O, NR<sup>5</sup>, or CHR<sup>5</sup>.

41. (Original) The compound of claims 38, 39 or 40, wherein compound variables are selected from one of more of the following groups:

- each occurrence of R<sup>1</sup> is independently hydrogen, halogen, optionally substituted C<sub>1</sub>-C<sub>4</sub>aliphatic, OR, SR, or N(R)<sub>2</sub>;
- each occurrence of R<sup>Z</sup> is independently hydrogen, halogen, optionally substituted C<sub>1</sub>-C<sub>4</sub>aliphatic, OH, OR' or N(R)(R')
- each occurrence of R<sup>4</sup> is independently hydrogen, C<sub>1-6</sub>aliphatic, CN, COR, COOR, CON(R)<sub>2</sub>, or halogen;
- R<sup>5</sup> is hydrogen, (CH<sub>2</sub>)<sub>3</sub>OR', (CH<sub>2</sub>)<sub>2</sub>OR', (CH<sub>2</sub>)OR', (CH<sub>2</sub>)<sub>3</sub>N(R')<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>N(R')<sub>2</sub>, (CH<sub>2</sub>)N(R')<sub>2</sub>, or C<sub>1-4</sub>aliphatic;
- Q<sup>3</sup> is a direct bond, or is -(CHR<sup>6</sup>)<sub>q</sub>-, -(CHR<sup>6</sup>)<sub>q</sub>O-, -(CHR<sup>6</sup>)<sub>q</sub>S-, -(CHR<sup>6</sup>)<sub>q</sub>S(O)<sub>2</sub>-, -(CHR<sup>6</sup>)<sub>q</sub>S(O)-, -(CHR<sup>6</sup>)<sub>q</sub>NR-, or -(CHR<sup>6</sup>)<sub>q</sub>C(O)-, wherein q is 0, 1, 2, or 3; and



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f)  $Ar^2$  is ring a, b, e, g, h, i, j, k, n, r, cc, dd, ff, jj, ll, or pp, wherein t is 0, 1, 2, or 3, and T is a bond or is an optionally substituted  $C_{1-6}$  alkylidene chain wherein one or two methylene units are optionally and independently replaced by  $-O-$ ,  $-NR-$ ,  $-S-$ ,  $-SO_2-$ ,  $-COO-$ ,  $-CO-$ ,  $-OSO_2-$ ,  $-NRSO_2-$ ,  $-CONR-$ , or  $-SO_2NR-$ , and  $R^7$  is  $R'$  or halogen.

42. (Previously presented) The compound of claims 38, 39 or 40, wherein compound variables are selected from one or more of the following groups:

a) each occurrence of  $R^1$  is independently hydrogen, halogen,  $-CH_3$ ,  $-CH_2CH_3$ ,  $-OH$ ,  $-OCH_3$ ,  $-SCH_3$ ,  $-NH_2$ ,  $-N(CH_3)_2$ ,  $-N(CH_2CH_3)_2$ ,  $NH(CH_2)_2NHCH_3$ ,  $NH(cyclopropyl)$ ,  $NH(CH_2)cyclopropyl$ , or  $NH(CH_2)_2N(CH_3)_2$ ;

b) each occurrence of  $R^Z$  is independently hydrogen, halogen, Me, OH, OMe,  $NH_2$ , or  $N(Me)_2$ ;

c) each occurrence of  $R^4$  is independently hydrogen,  $C_{1-6}$ aliphatic, CN, COR, COOR,  $CON(R)_2$ , or halogen;

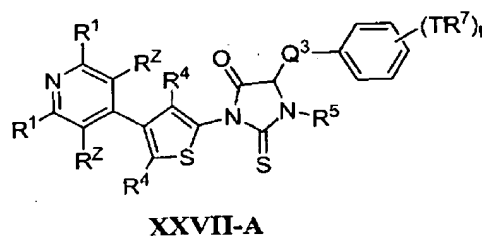
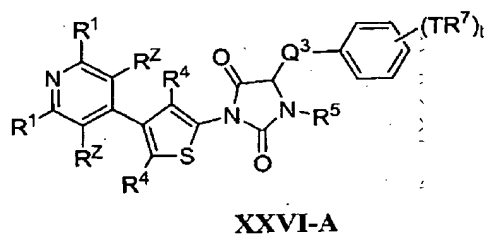
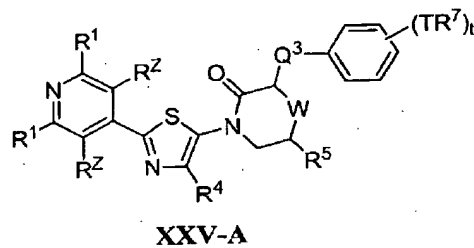
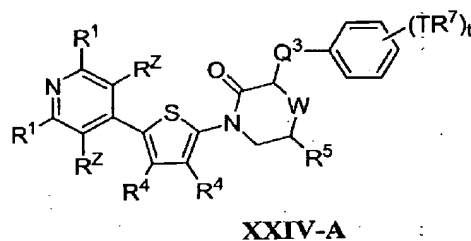
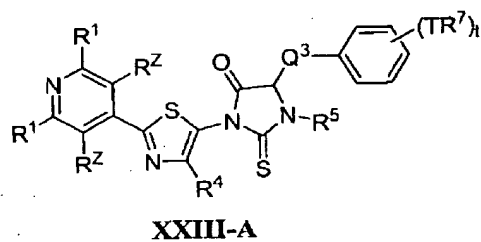
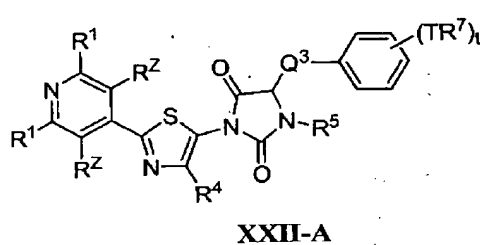
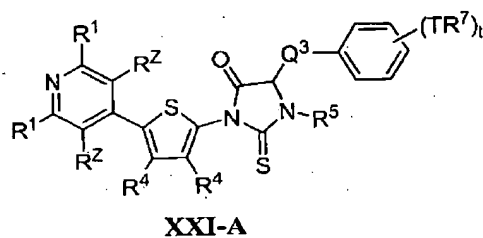
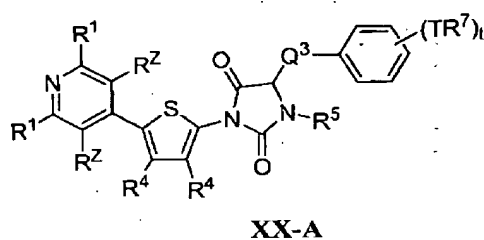
d)  $R^5$  is hydrogen,  $(CH_2)_3OR'$ ,  $(CH_2)_2OR'$ ,  $(CH_2)OR'$ ,  $(CH_2)_3N(R')_2$ ,  $(CH_2)_2N(R')_2$ ,  $(CH_2)N(R')_2$ , or  $C_{1-4}$ aliphatic;

e)  $Q^3$  is a direct bond, or is  $-(CHR^6)_q-$ ,  $-(CHR^6)_qO-$ ,  $-(CHR^6)_qS-$ ,  $-(CHR^6)_qS(O)_2-$ ,  $-(CHR^6)_qS(O)-$ ,  $-(CHR^6)_qNR-$ , or  $-(CHR^6)_qC(O)-$ , wherein q is 0, 1, 2, or 3; and

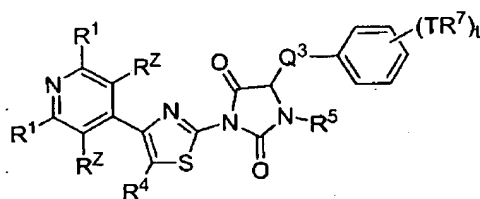
f)  $Ar^2$  is ring a, b, e, g, h, i, j, k, n, r, cc, dd, ff, jj, ll, or pp, wherein t is 0, 1, 2, or 3, and each occurrence of  $TR^7$  is independently  $C_{1-3}$ alkyl,  $-OR'$ ,  $-SR'$ ,  $-CF_3$ ,  $-OCF_3$ ,  $-SCF_3$ ,  $-F$ ,  $-Cl$ ,  $I$ ,  $-Br$ ,  $-COOR'$ ,  $-COR'$ ,  $-O(CH_2)_4N(R)(R')$ ,  $-O(CH_2)_3N(R)(R')$ ,  $-O(CH_2)_2N(R)(R')$ ,  $-O(CH_2)N(R)(R')$ ,  $-O(CH_2)_4CON(R)(R')$ ,  $-O(CH_2)_3CON(R)(R')$ ,  $-O(CH_2)_2CON(R)(R')$ ,  $-O(CH_2)CON(R)(R')$ ,  $-C(O)N(R)(R')$ ,  $-(CH_2)_4OR'$ ,  $-(CH_2)_3OR'$ ,  $-(CH_2)_2OR'$ ,  $-CH_2OR'$ , optionally substituted phenyl or benzyl,  $-N(R)(R')$ ,  $-(CH_2)_4N(R)(R')$ ,  $-(CH_2)_3N(R)(R')$ ,  $-(CH_2)_2N(R)(R')$ ,  $-(CH_2)N(R)(R')$ ,  $-SO_2N(R)(R')$ ,  $-NRSO_2R'$ ,  $-CON(R)(R')$ , or  $-OSO_2R'$ .

43. (Currently amended) The compound of claims 38, 39 or 40, wherein  $Ar^2$  is optionally substituted phenyl and compounds of general formula XX-A, through XXXVII are provided:

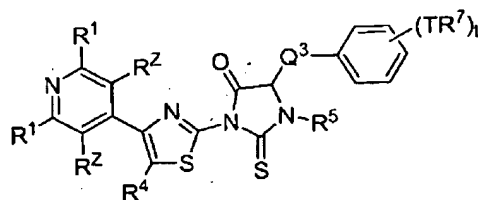
Applicants: Jingrong Cao et al.  
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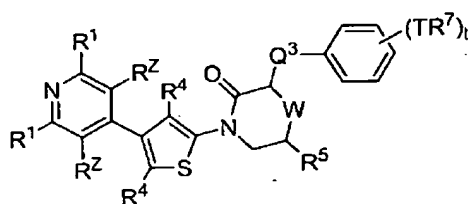
Applicants: Jingrong Cao et al.  
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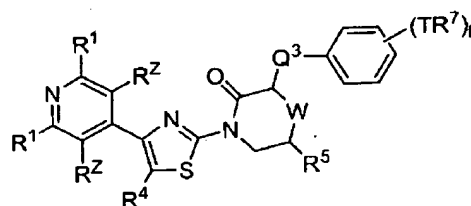
XXVIII-A



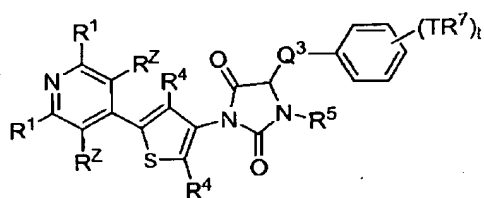
XXIX-A



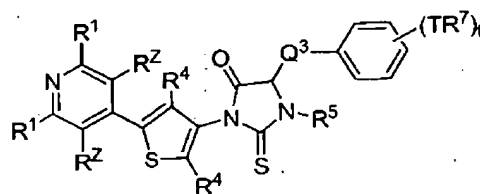
XXX-A



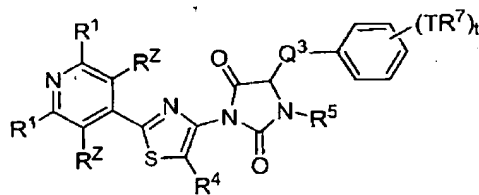
XXXI-A



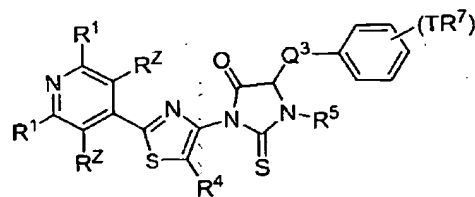
XXXII-A



XXXIII-A

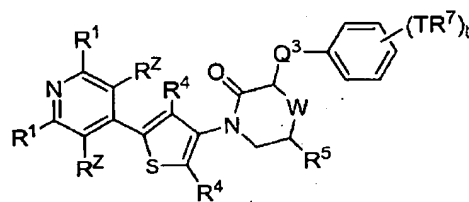


XXXIV-A

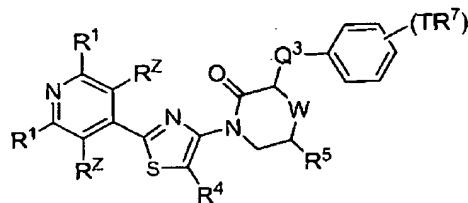


XXXV-A

Applicants: Jingrong Cao et al.  
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XXXVI-A



XXXVII-A.

44. (Previously presented) The compound of claim 43, wherein compound variables are selected from:

each occurrence of  $R^1$  is hydrogen;

each occurrence of  $R^2$  is hydrogen;

each occurrence of  $R^4$  is independently hydrogen,  $C_{1-6}$ aliphatic, CN, COR, COOR,

CON(R)<sub>2</sub>, or halogen;

$R^5$  is hydrogen,  $(CH_2)_3OR'$ ,  $(CH_2)_2OR'$ ,  $(CH_2)OR'$ ,  $(CH_2)_3N(R')_2$ ,  $(CH_2)_2N(R')_2$ ,

$(CH_2)N(R')_2$ , or  $C_{1-4}$ aliphatic;

$Q^3$  is a direct bond, or is  $-(CHR^6)_q-$ ,  $-(CHR^6)_qO-$ ,  $-(CHR^6)_qS-$ ,  $-(CHR^6)_qS(O)_2-$ ,

$(CHR^6)_qS(O)-$ ,  $-(CHR^6)_qNR-$ , or  $-(CHR^6)_qC(O)-$ , wherein q is 0, 1, 2, or 3; and

t is 0, 1, 2, or 3, and each occurrence of  $TR^7$  is independently  $-C_{1-3}$ alkyl,  $-OR'$ ,  $-SR'$ ,

$CF_3$ ,  $-OCF_3$ ,  $-SCF_3$ ,  $-F$ ,  $-Cl$ ,  $I$ ,  $-Br$ ,  $-COOR'$ ,  $-COR'$ ,  $-O(CH_2)_4N(R)(R')$ ,

$-O(CH_2)_3N(R)(R')$ ,  $-O(CH_2)_2N(R)(R')$ ,  $-O(CH_2)N(R)(R')$ ,  $-O(CH_2)_4CON(R)(R')$ ,

$-O(CH_2)_3CON(R)(R')$ ,  $-O(CH_2)_2CON(R)(R')$ ,  $-O(CH_2)CON(R)(R')$ ,  $-C(O)N(R)(R')$ ,

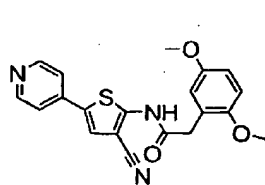
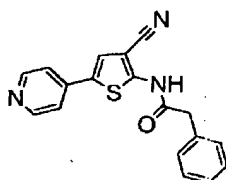
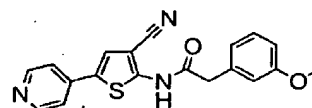
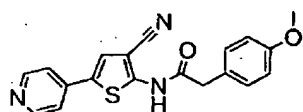
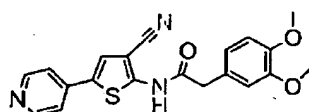
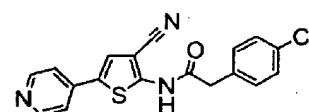
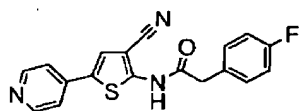
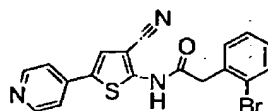
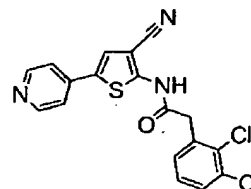
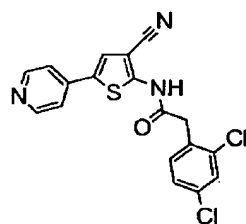
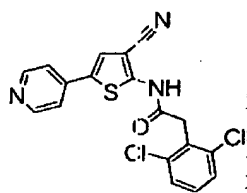
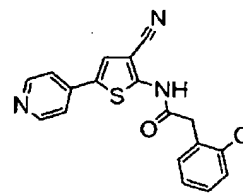
$(CH_2)_4OR'$ ,  $-(CH_2)_3OR'$ ,  $-(CH_2)_2OR'$ ,  $-CH_2OR'$ , optionally substituted phenyl or benzyl,

$N(R)(R')$ ,  $-(CH_2)_4N(R)(R')$ ,  $-(CH_2)_3N(R)(R')$ ,  $-(CH_2)_2N(R)(R')$ ,

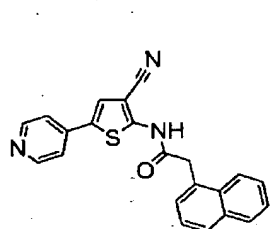
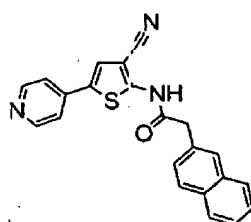
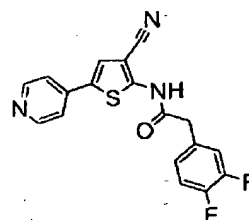
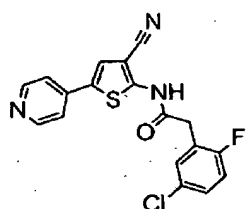
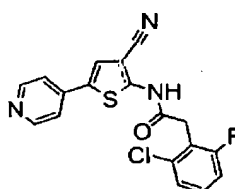
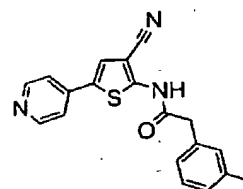
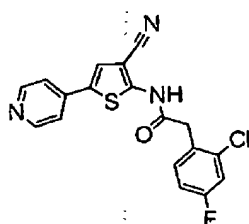
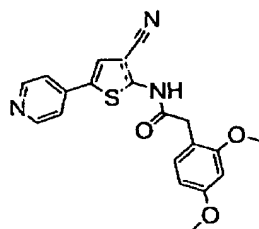
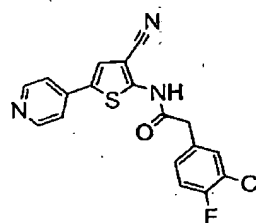
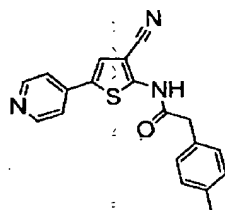
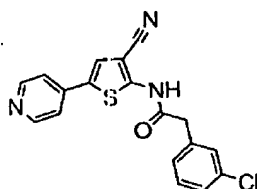
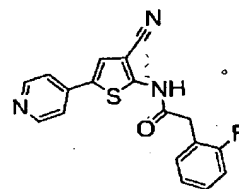
$-(CH_2)N(R)(R')$ ,  $-SO_2N(R)(R')$ ,  $-NRSO_2R'$ ,  $-CON(R)(R')$ , or  $-OSO_2R'$ .

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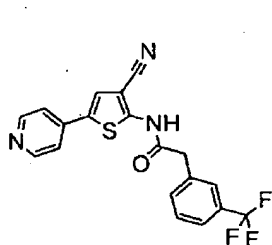
45. (Currently amended) The compound of claim 1, having one of the structures:

**I-A-1****I-A-2****I-A-3****I-A-4****I-A-5****I-A-6****I-A-7****I-A-8****I-A-9****I-A-10****I-A-11****I-A-12**

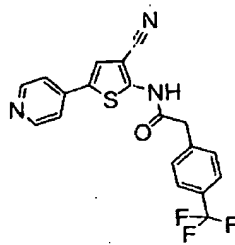
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**I-A-13****I-A-14****I-A-15****I-A-16****I-A-17****I-A-18****I-A-19****I-A-20****I-A-21****I-A-22****I-A-23****I-A-24**

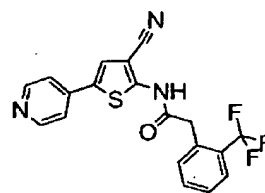
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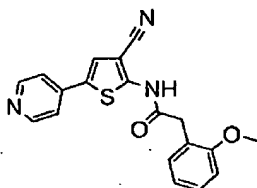
I-A-25



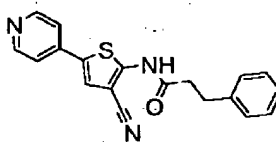
I-A-26



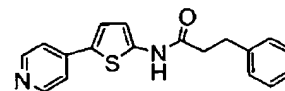
I-A-27



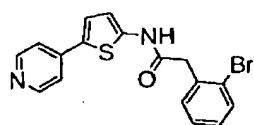
I-A-28



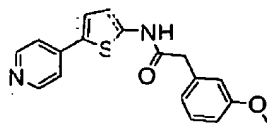
I-A-29



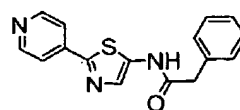
I-A-30



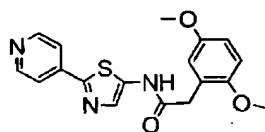
I-A-31



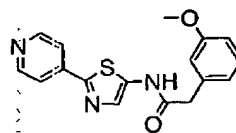
I-A-32



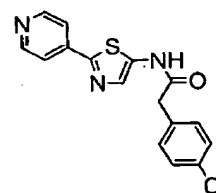
I-A-33



I-A-34

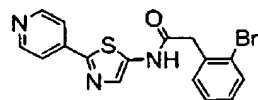


I-A-35

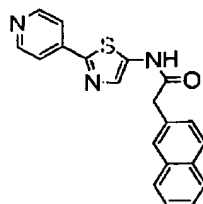


I-A-36

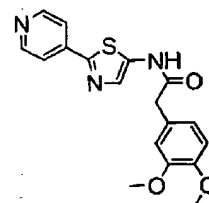
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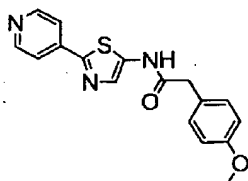
I-A-37



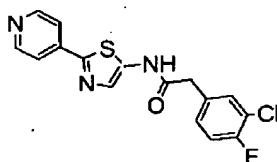
I-A-38



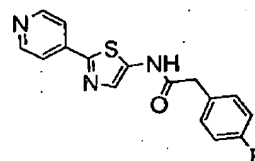
I-A-39



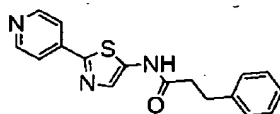
I-A-40



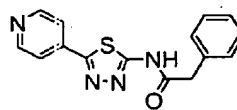
I-A-41



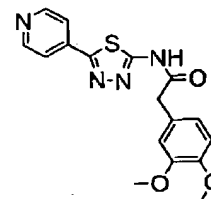
I-A-42



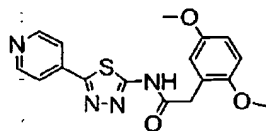
I-A-43



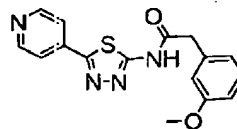
I-A-44



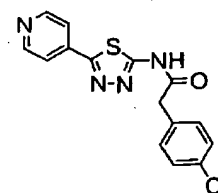
I-A-45



I-A-46



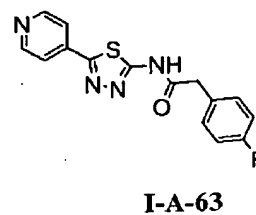
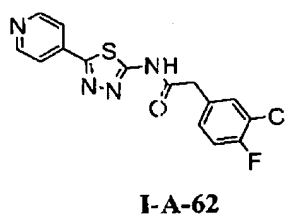
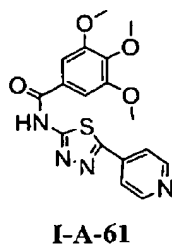
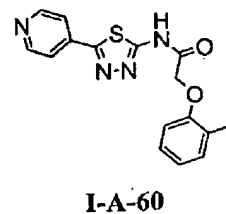
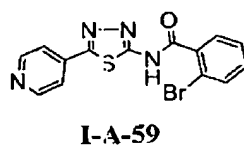
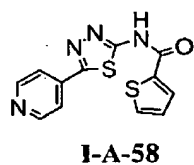
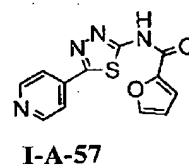
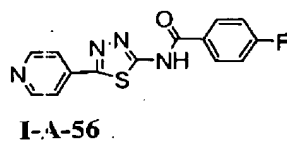
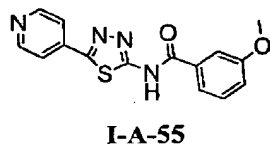
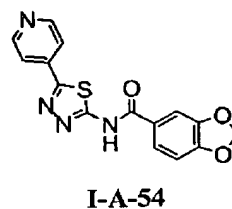
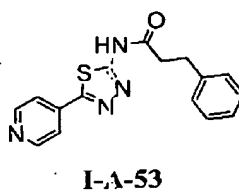
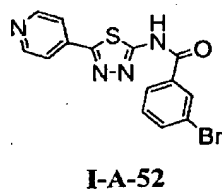
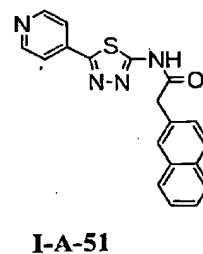
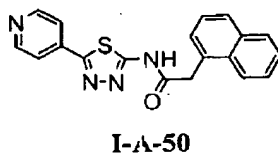
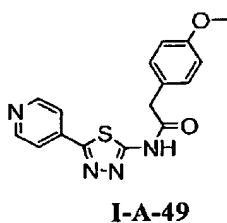
I-A-47



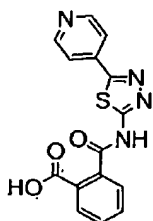
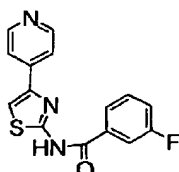
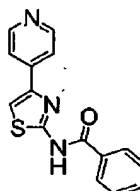
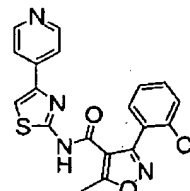
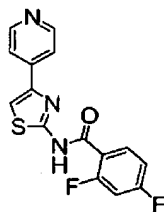
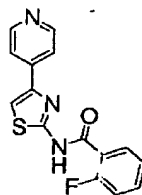
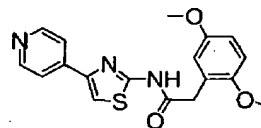
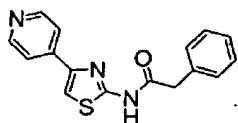
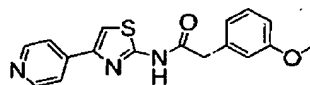
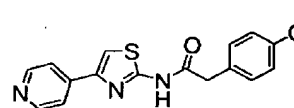
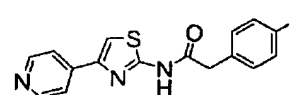
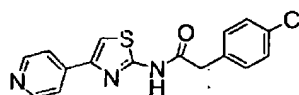
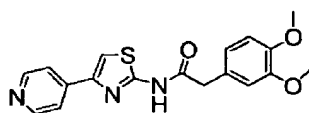
I-A-48



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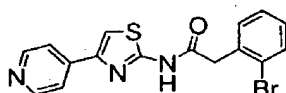


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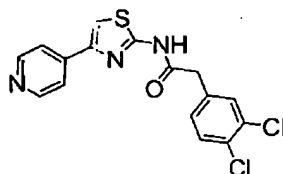
**I-A-64****I-B-1****I-B-2****I-B-3****I-B-4****I-B-5****I-B-6****I-B-19****I-B-20****I-B-21**

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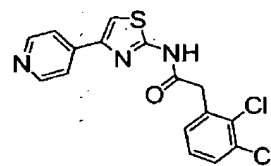
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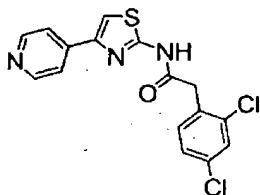
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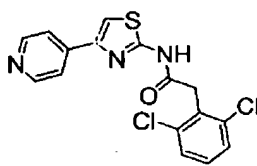
I-B-24



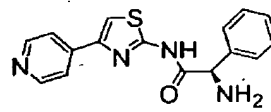
I-B-25



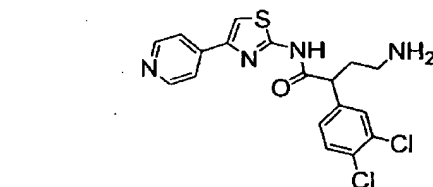
I-B-26



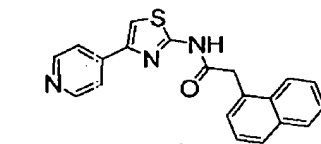
I-B-27



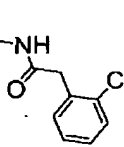
I-B-28



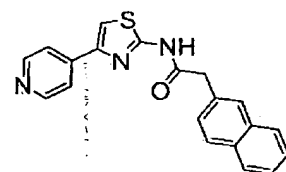
I-B-29



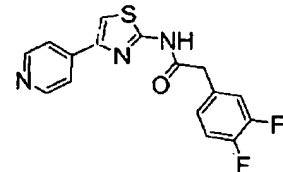
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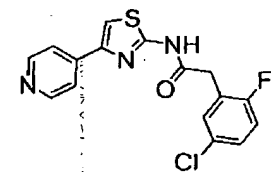
I-B-31



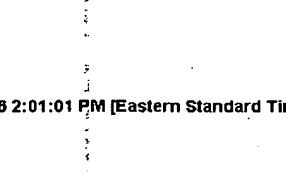
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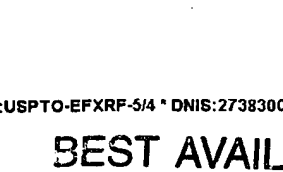
I-B-33



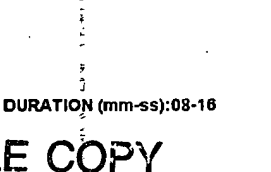
I-B-34



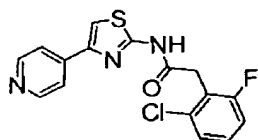
I-B-35



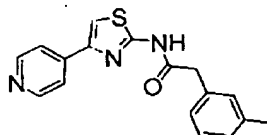
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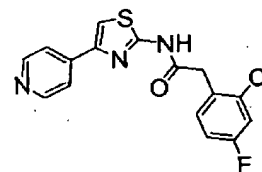
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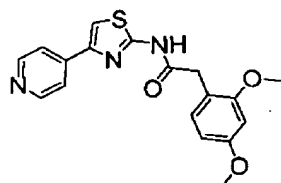
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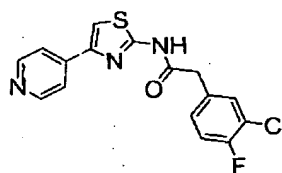
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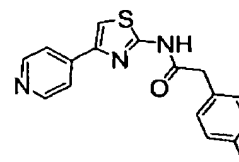
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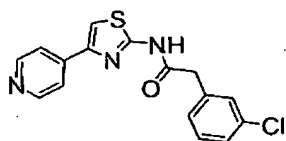
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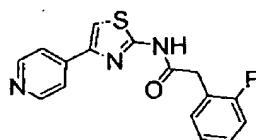
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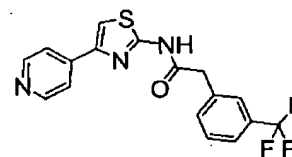
I-B-42



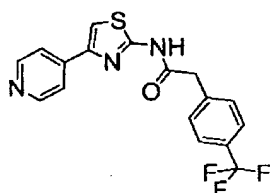
I-B-43



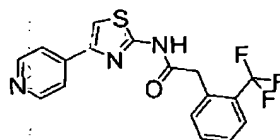
I-B-44



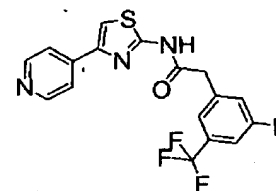
I-B-45



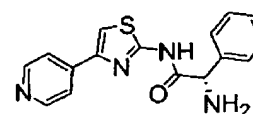
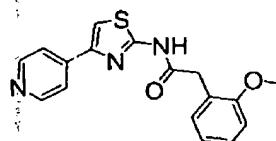
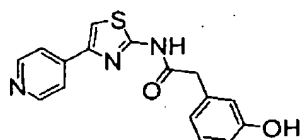
I-B-46



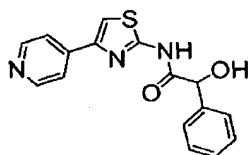
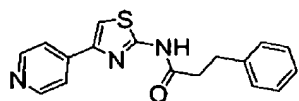
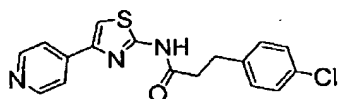
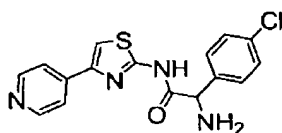
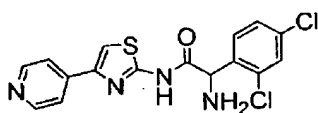
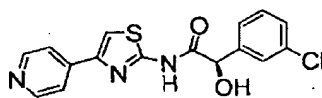
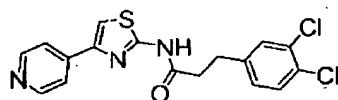
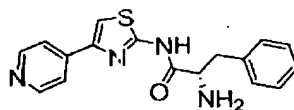
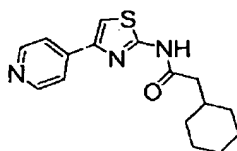
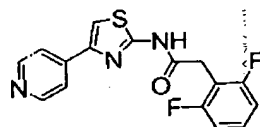
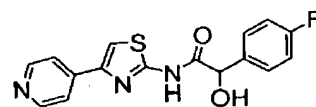
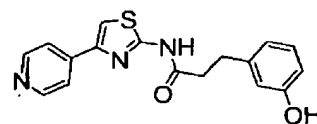
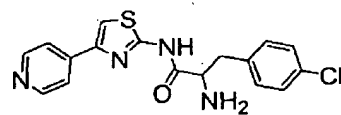
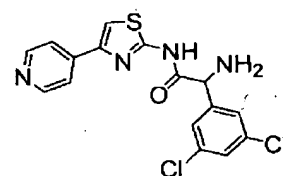
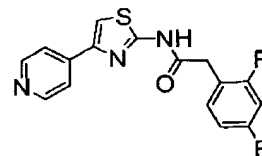
I-B-47



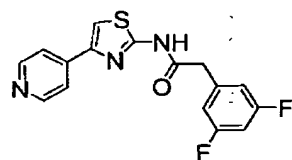
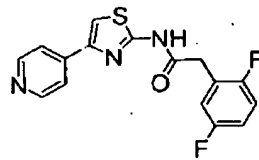
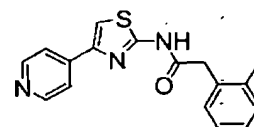
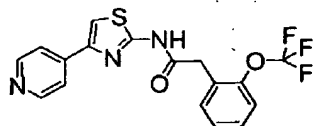
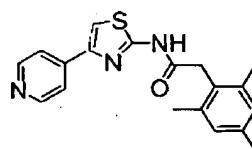
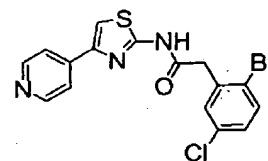
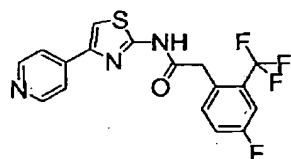
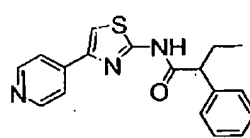
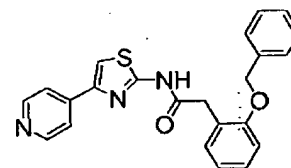
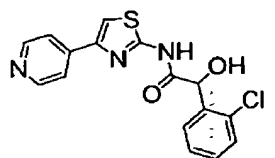
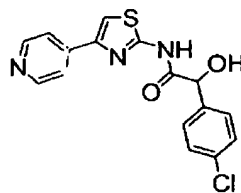
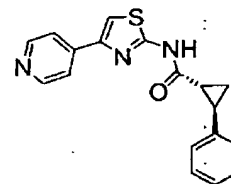
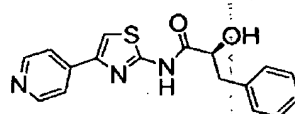
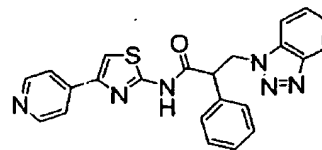
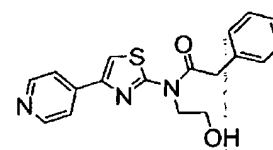
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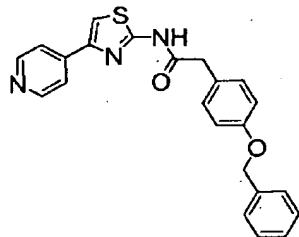
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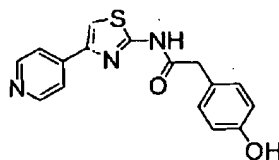
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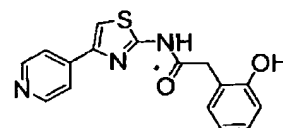
Applicants: Jingrong Cao et al.  
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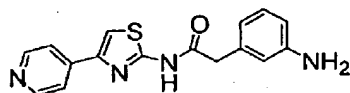
I-B-82



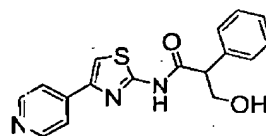
I-B-83



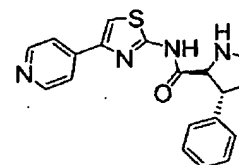
I-B-84



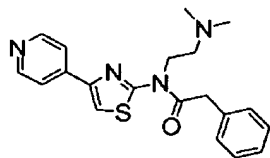
I-B-85



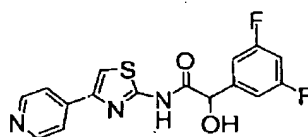
I-B-86



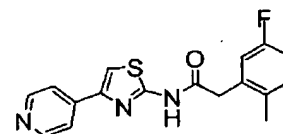
I-B-87



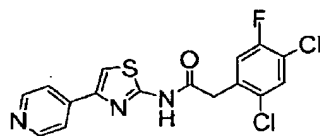
I-B-88



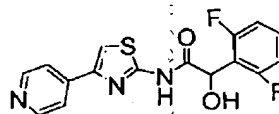
I-B-89



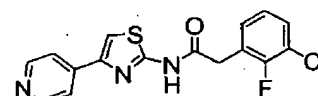
I-B-90



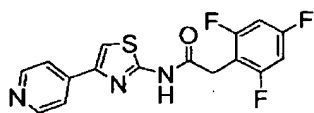
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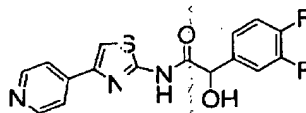
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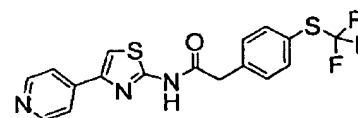
I-B-93



I-B-94

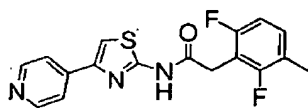
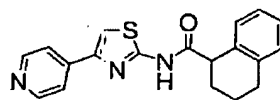
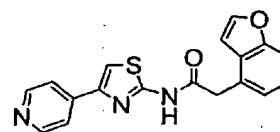
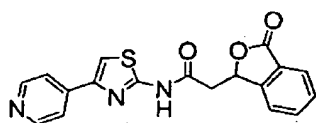
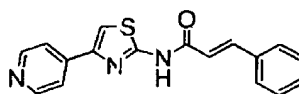
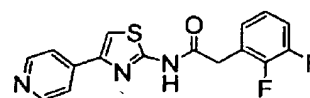
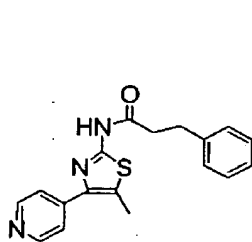
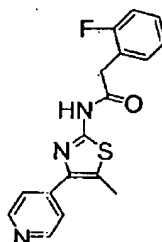
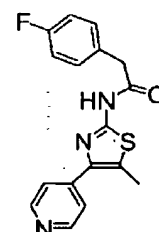
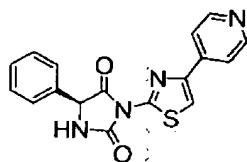
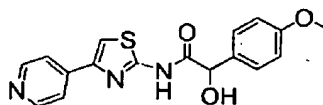
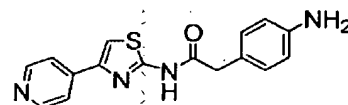
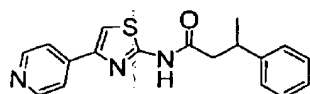
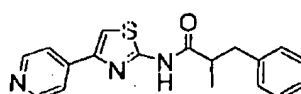
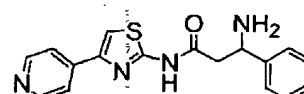


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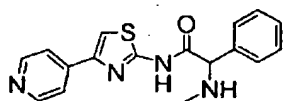
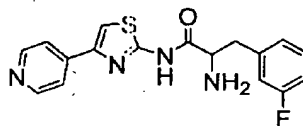
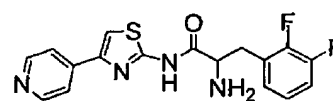
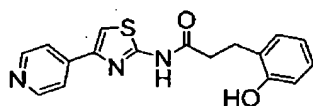
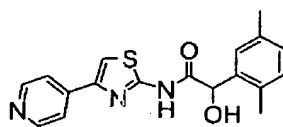
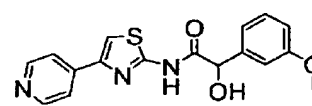
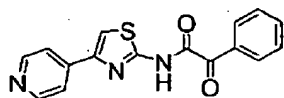
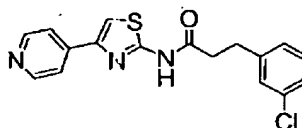
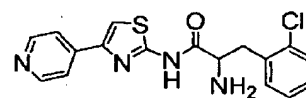
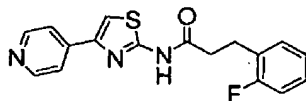
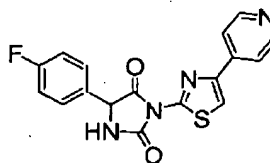
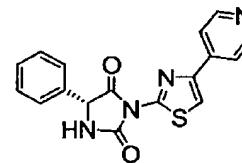
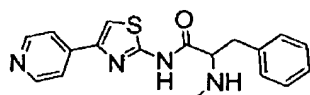
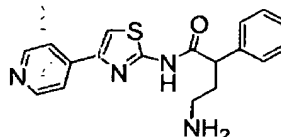
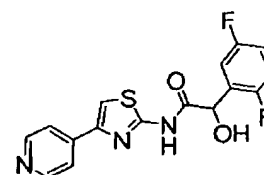
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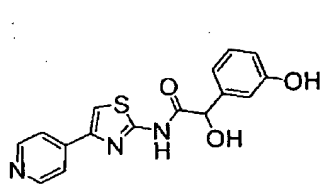
**I-B-97****I-B-98****I-B-99****I-B-100****I-B-101****I-B-102****I-B-103****I-B-104****I-B-105****I-B-106****I-B-107****I-B-108****I-B-109****I-B-110****I-B-111**



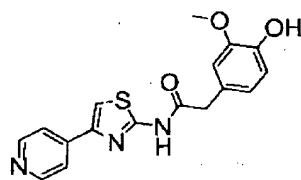
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**I-B-112****I-B-113****I-B-114****I-B-115****I-B-116****I-B-117****I-B-118****I-B-119****I-B-120****I-B-121****I-B-122****I-B-123****I-B-124****I-B-125****I-B-126**

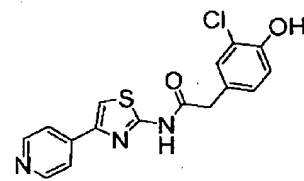
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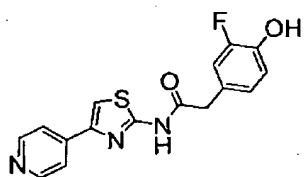
I-B-127



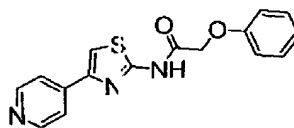
I-B-128



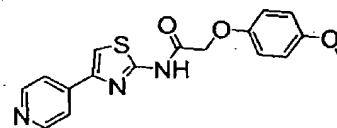
I-B-129



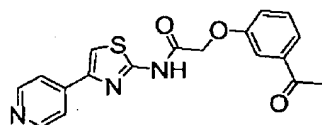
I-B-130



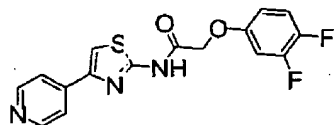
I-B-131



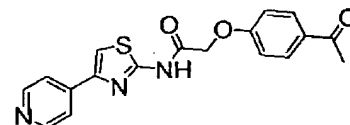
I-B-132



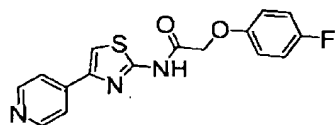
I-B-133



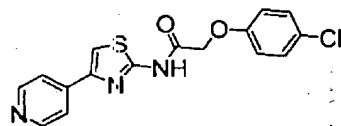
I-B-134



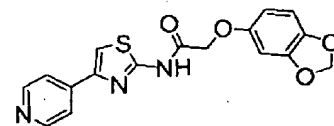
I-B-135



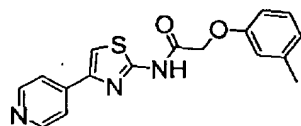
I-B-136



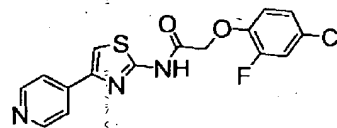
I-B-137



I-B-138

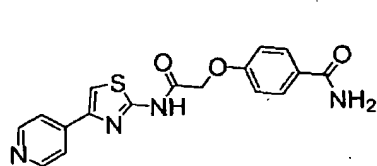


I-B-141

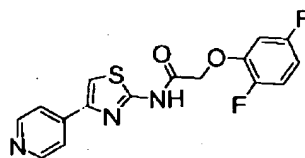


I-B-142

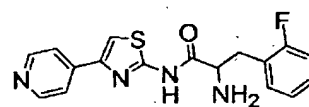
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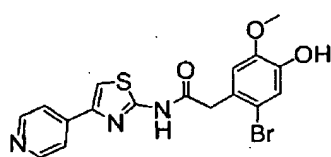
I-B-143



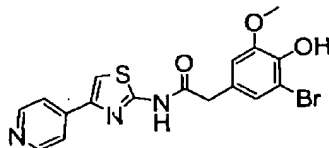
I-B-144



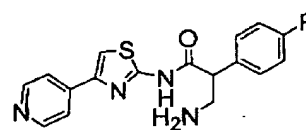
I-B-146



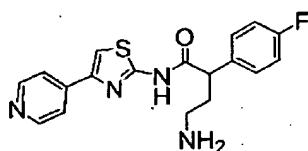
I-B-148



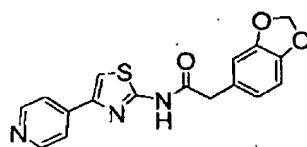
I-B-149



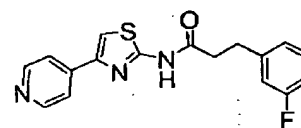
I-B-150



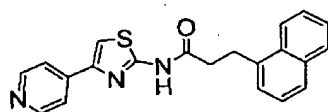
I-B-151



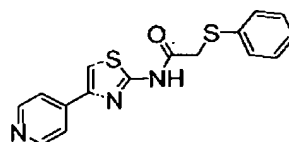
I-B-152



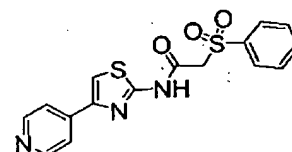
I-B-153



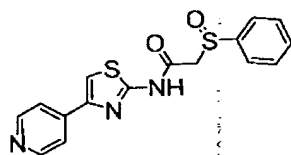
I-B-154



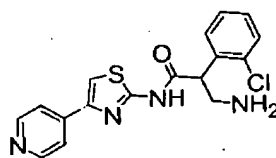
I-B-155



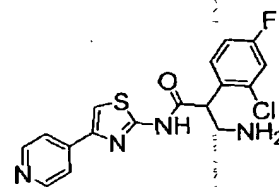
I-B-156



I-B-157

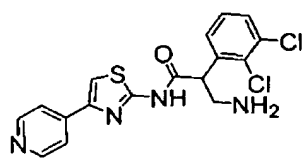
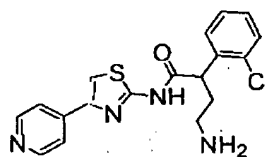
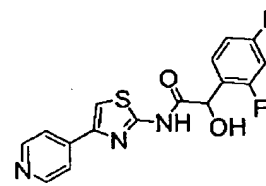
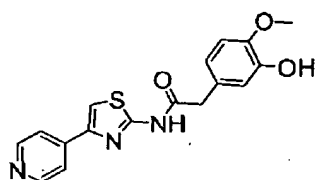
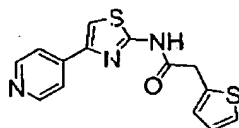
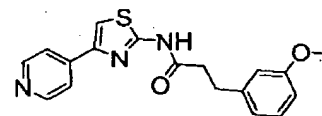
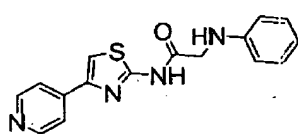
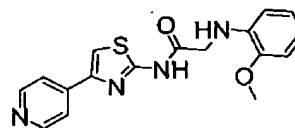
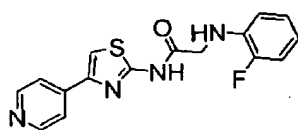
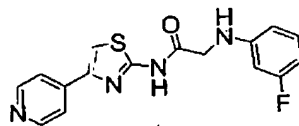
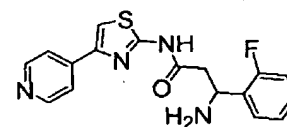
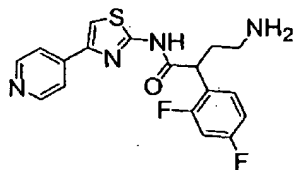
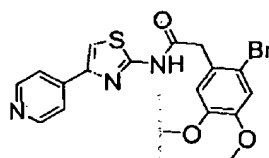
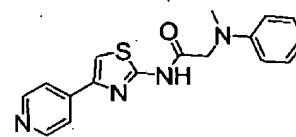


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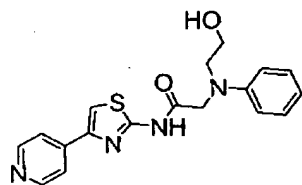
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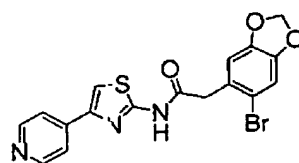
**I-B-160****I-B-161****I-B-162****I-B-163****I-B-164****I-B-165****I-B-167****I-B-168****I-B-169****I-B-170****I-B-171****I-B-175****I-B-176****I-B-177**

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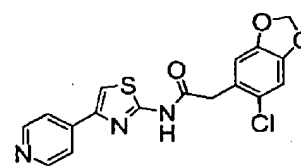
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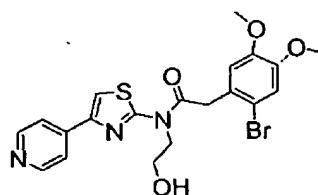
I-B-178



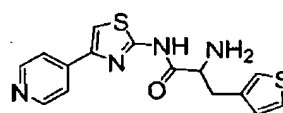
I-B-179



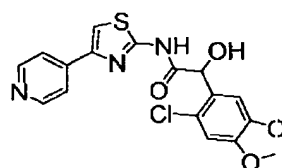
I-B-180



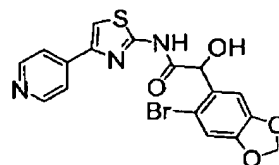
I-B-181



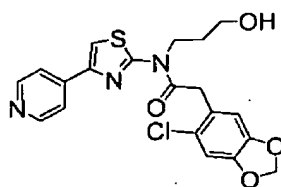
I-B-182



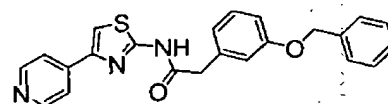
I-B-185



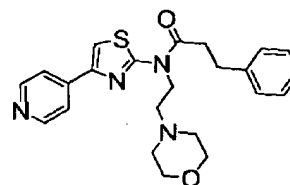
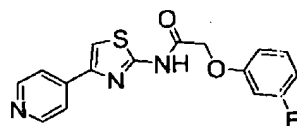
I-B-186



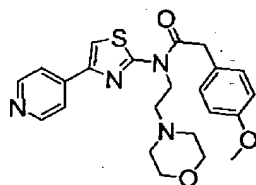
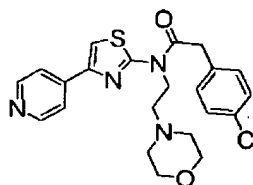
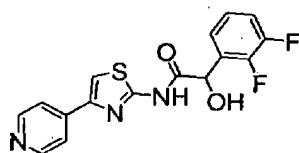
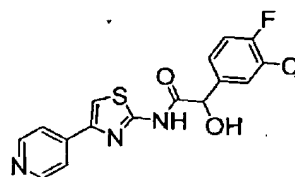
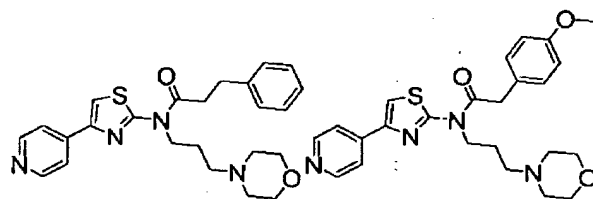
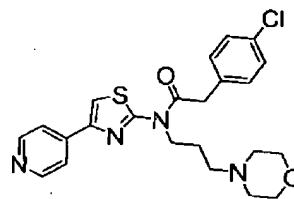
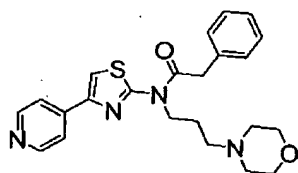
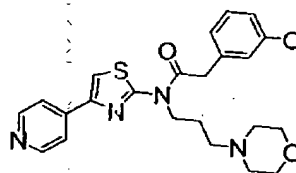
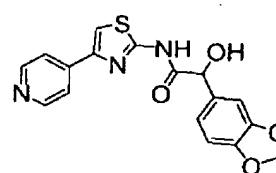
I-B-187



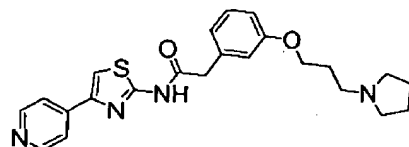
I-B-190



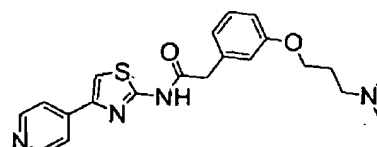
Applicants: Jingrong Cao et al.  
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**I-B-191****I-B-192****I-B-193****I-B-194****I-B-197****I-B-198****I-B-199****I-B-200****I-B-201****I-B-202****I-B-203****I-B-204**

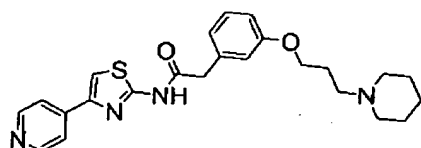
Applicants: Jingrong Cao et al.  
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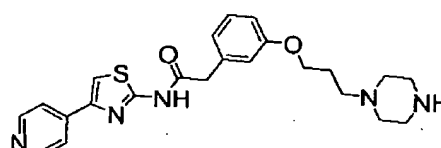
I-B-205



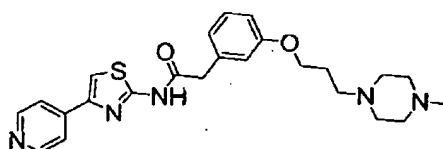
I-B-206



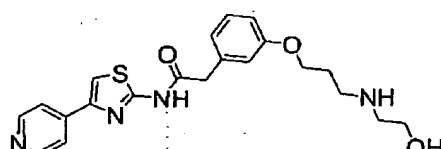
I-B-207



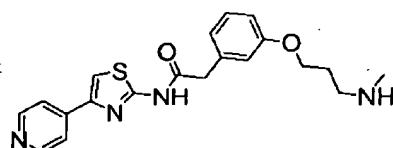
I-B-208



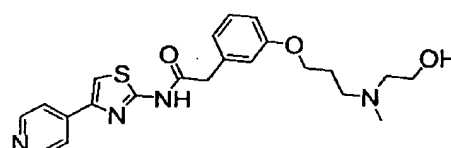
I-B-209



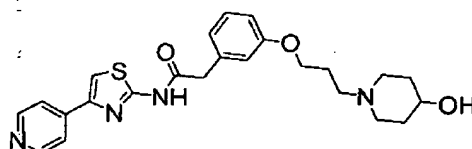
I-B-210



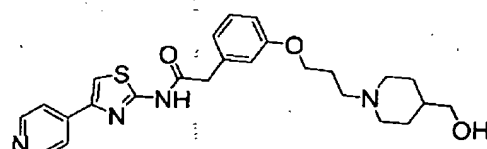
I-B-211



I-B-212

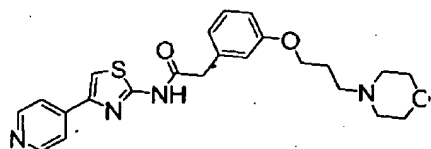
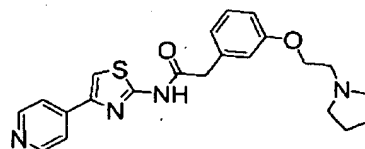
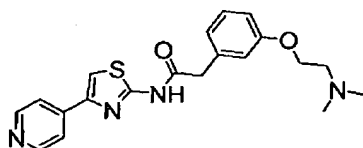
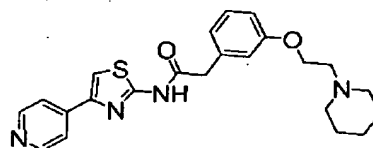
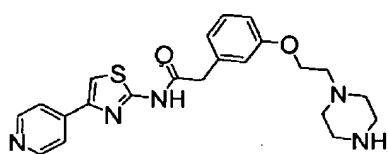
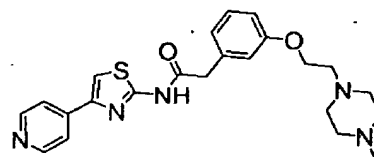
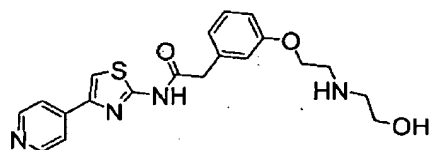
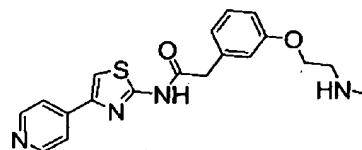
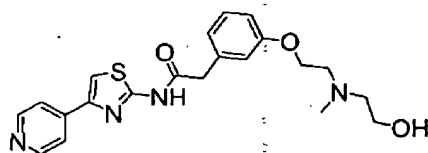
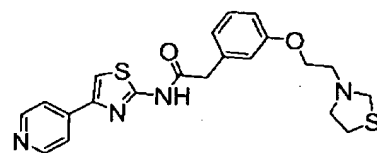


I-B-213



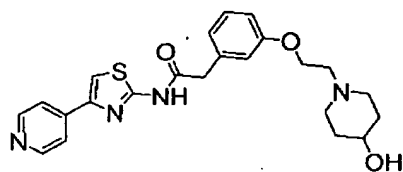
I-B-214

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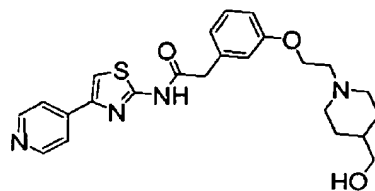
**I-B-215****I-B-216****I-B-217****I-B-218****I-B-219****I-B-220****I-B-221****I-B-222****I-B-223****I-B-224**



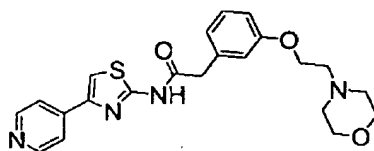
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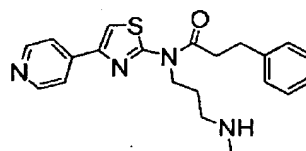
I-B-225



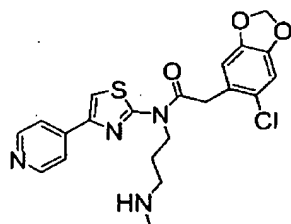
I-B-226



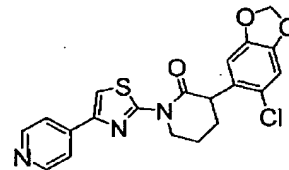
I-B-227



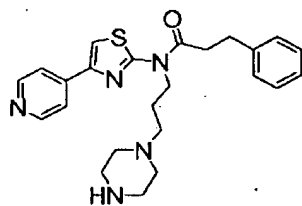
I-B-228



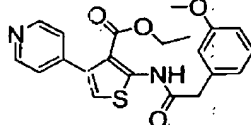
I-B-229



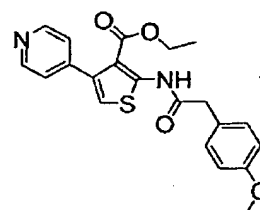
I-B-230



I-B-231

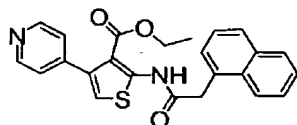
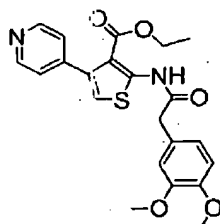
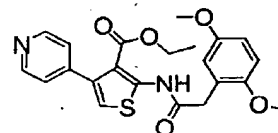
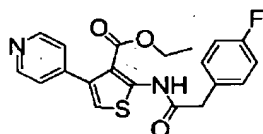
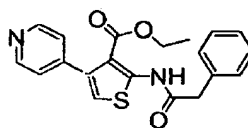
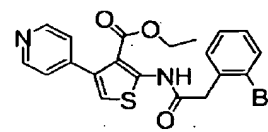
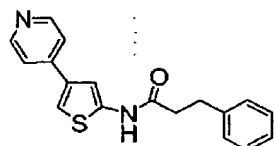
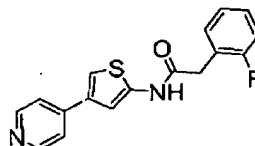
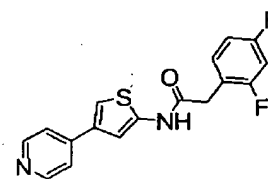
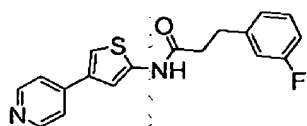
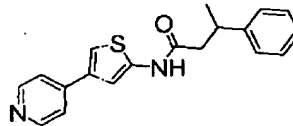
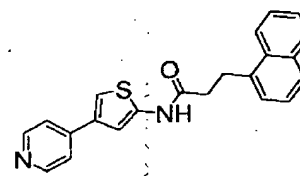
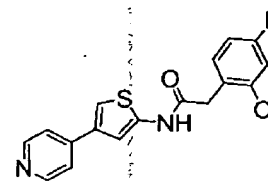
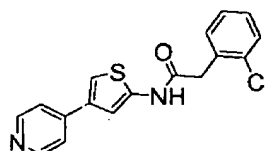
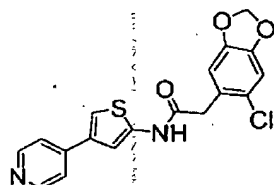


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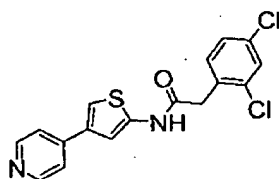
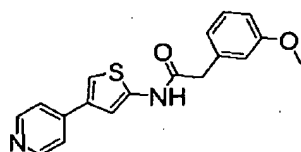
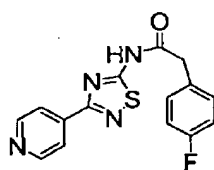
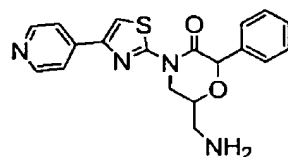
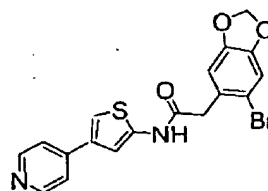
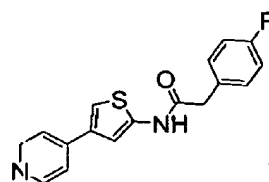
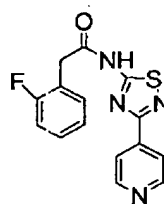
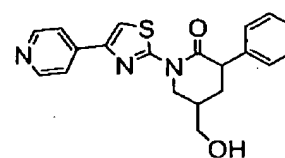
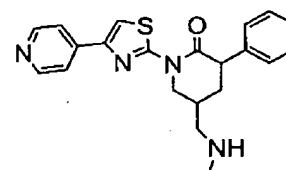


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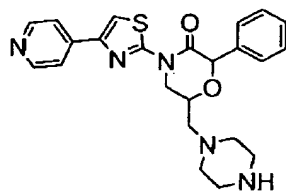
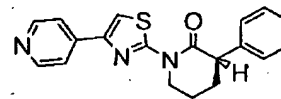
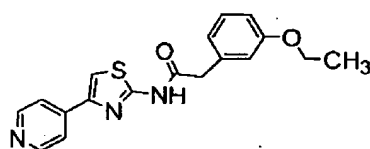
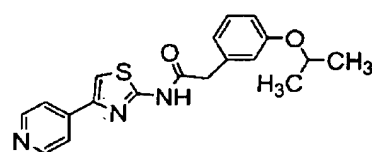
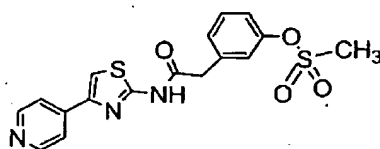
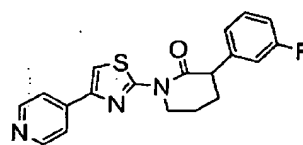
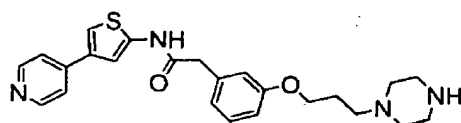
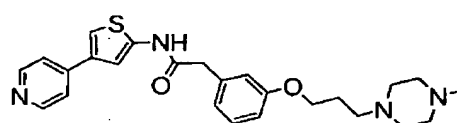
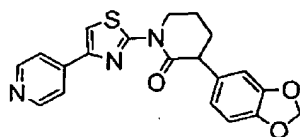
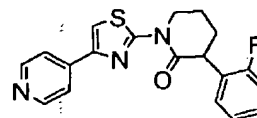
Applicants: Jingrong Cao et al.  
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**I-B-234****I-B-235****I-B-236****I-B-237****I-B-238****I-B-239****I-B-240****I-B-241****I-B-242****I-B-243****I-B-244****I-B-245**

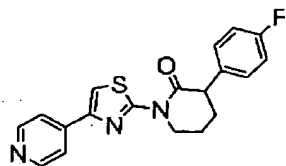
Applicants: Jingrong Cao et al.  
Application No.: 10/696,862

**I-B-246****I-B-249****I-B-252****I-B-255****I-B-276****I-B-247****I-B-250****I-B-253****I-B-256****I-B-275****I-B-277**

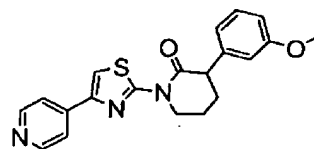
Applicants: Jingrong Cao et al.  
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**I-B-278****I-B-279****I-B-280****I-B-281****I-B-282****I-B-283****I-B-284****I-B-285****I-B-286****I-B-287**

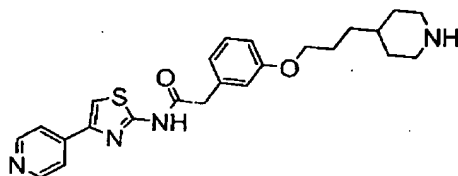
Applicants: Jingrong Cao et al.  
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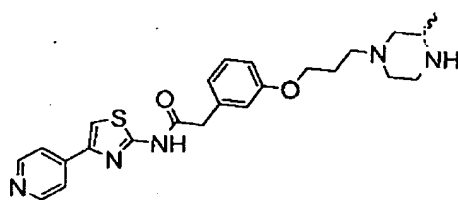
I-B-288



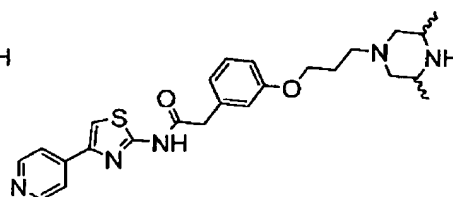
I-B-289



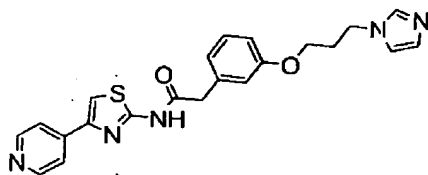
I-B-290



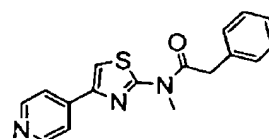
I-B-291



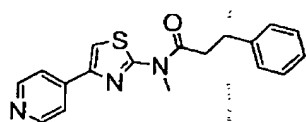
I-B-292



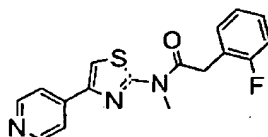
I-B-293



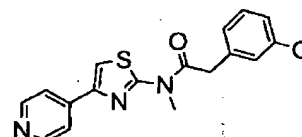
I-B-294



I-B-295

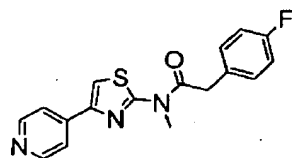
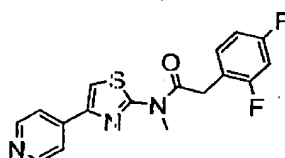
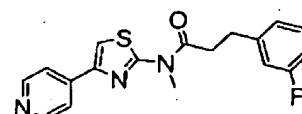
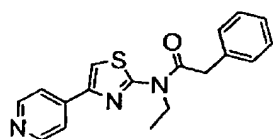
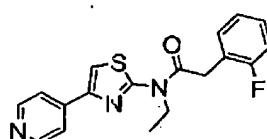
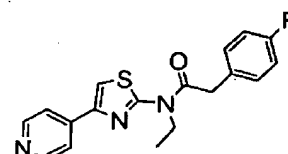
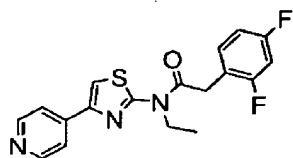
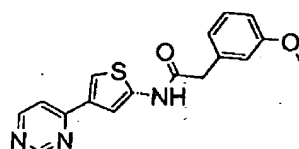
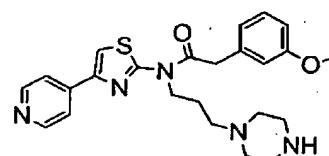
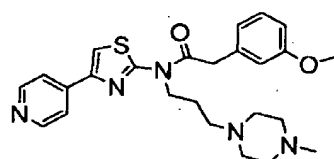
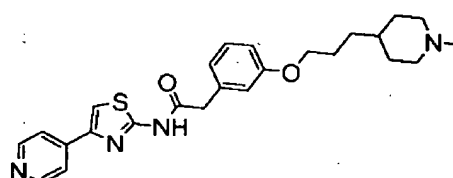
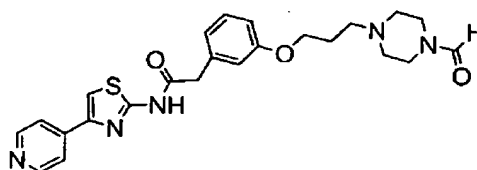
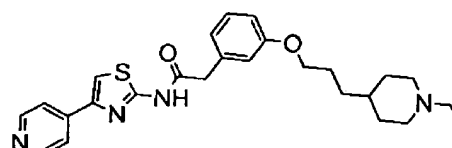


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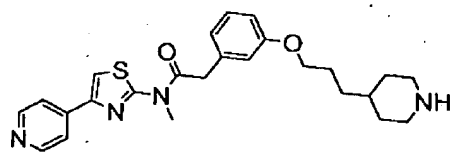
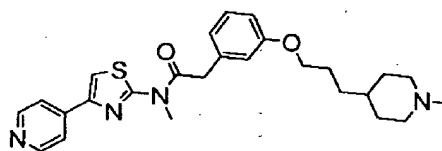
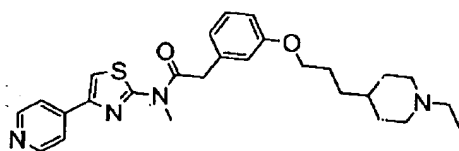
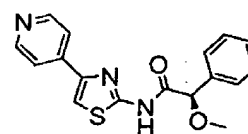
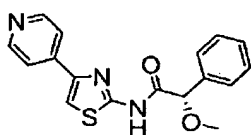
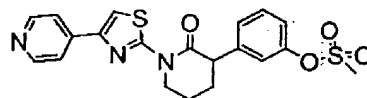
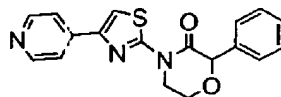
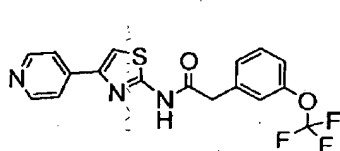
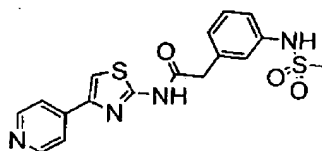
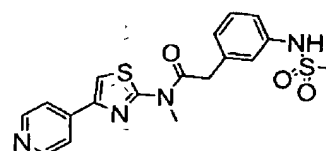
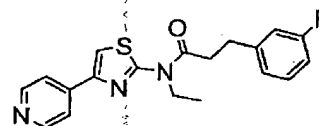
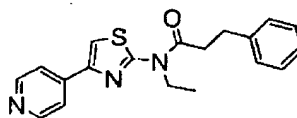
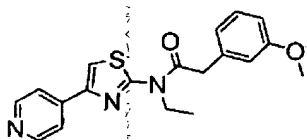


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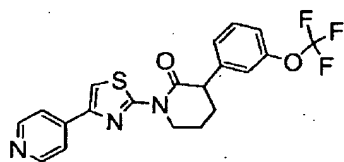
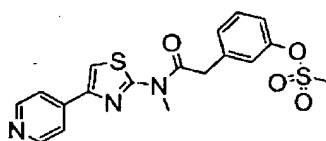
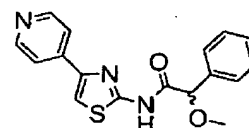
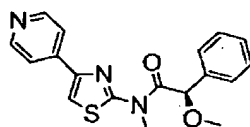
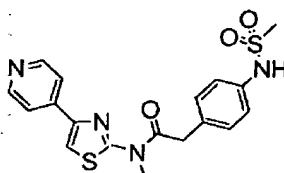
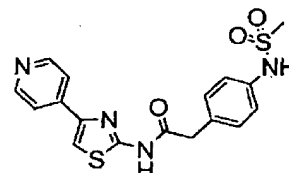
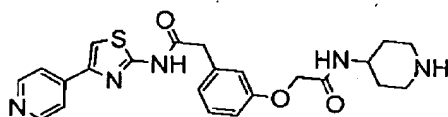
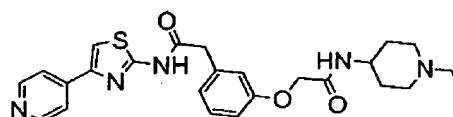
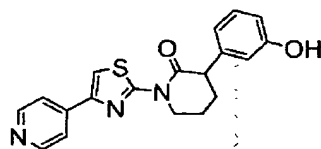
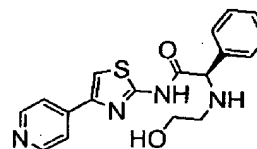
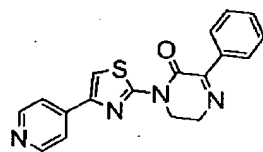
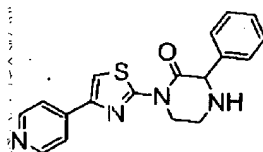
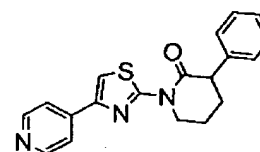
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**I-B-298****I-B-299****I-B-300****I-B-301****I-B-302****I-B-303****I-B-304****I-B-305****I-B-306****I-B-307****I-B-308****I-B-309****I-B-312**

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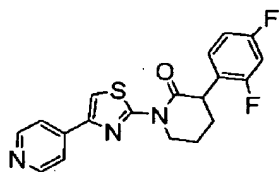
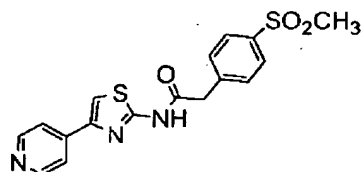
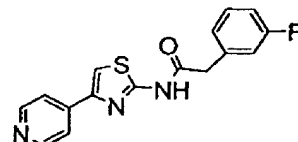
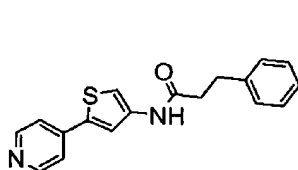
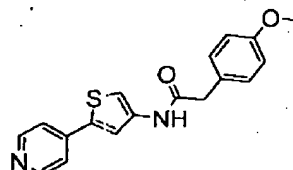
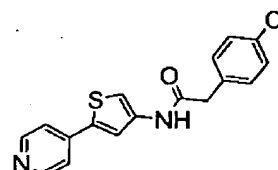
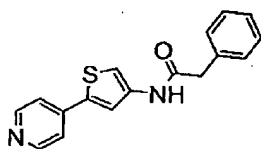
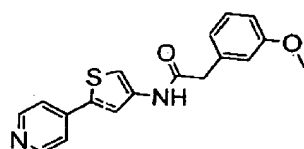
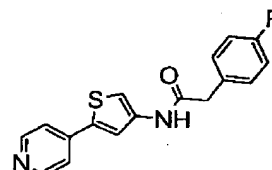
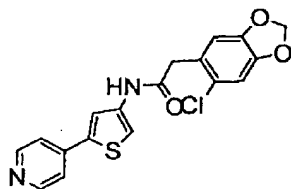
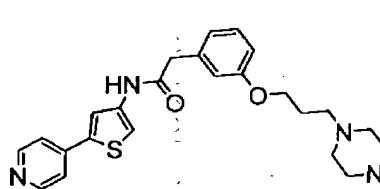
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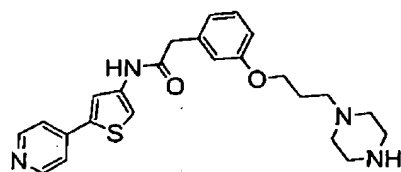
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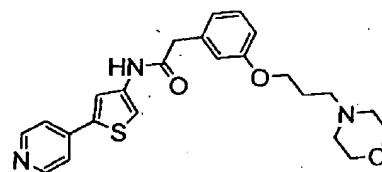
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**I-B-344****I-B-345****I-B-346****I-C-1****I-C-2****I-C-3****I-C-4****I-C-5****I-C-6****I-C-7****I-C-8**

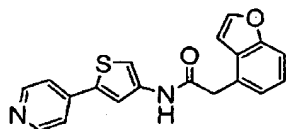
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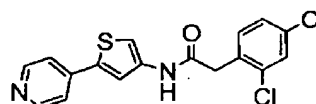
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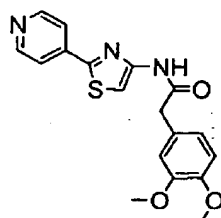
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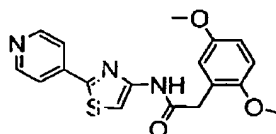
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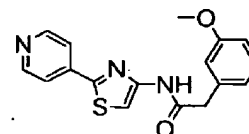
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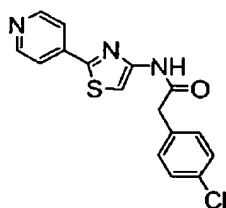
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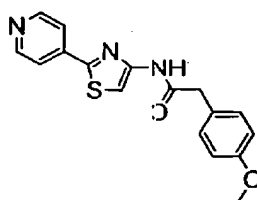
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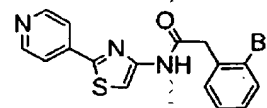
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I-C-16

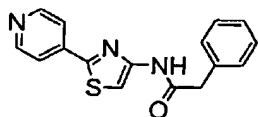


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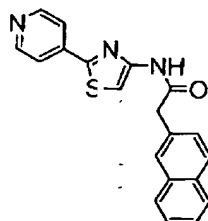


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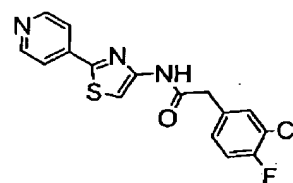
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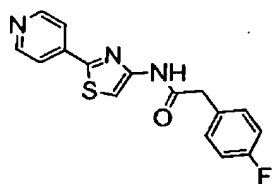
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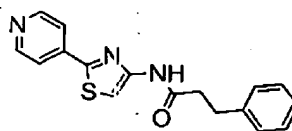
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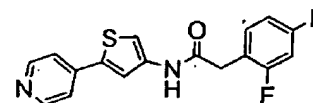
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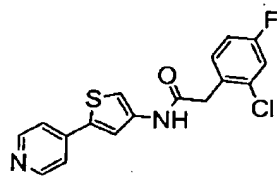
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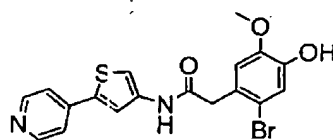
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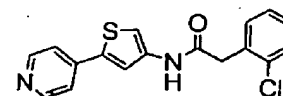
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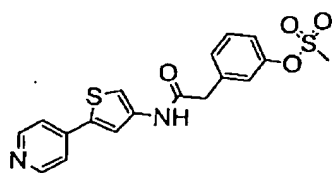
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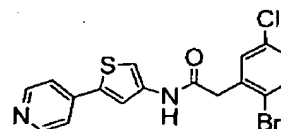
I-C-26



I-C-27

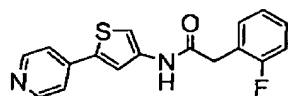


I-C-28

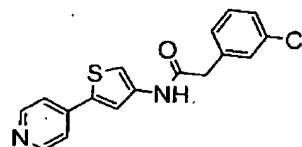


I-C-30

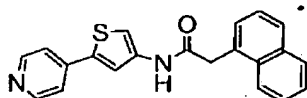
Applicants: Jingrong Cao et al.  
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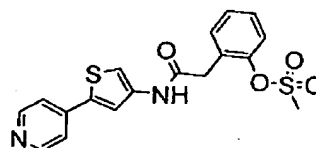
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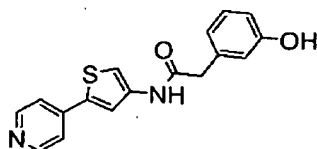
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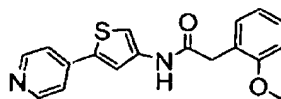
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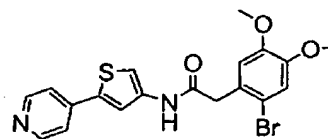
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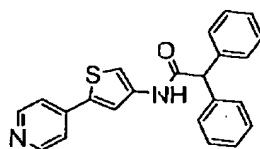
I-C-37



I-C-38



I-C-39



I-C-41

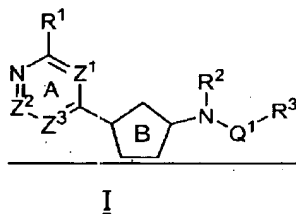
46. (Original) A composition comprising an effective amount of compound of claim 1, and a pharmaceutically acceptable carrier, adjuvant, or vehicle.

47-53. (Canceled)

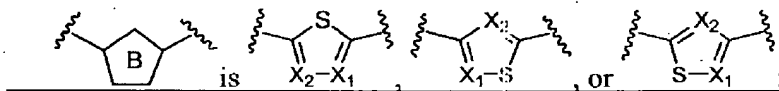
54. (Currently amended) A method of treating or lessening the severity of a disease or disorder selected from The method of claim 50, wherein said compound is used to treat or

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lessen the severity of Alzheimer's disease, an allergy, asthma, or diabetes in a patient  
said method comprising administering to said patient a compound or a composition  
comprising a compound having the formula:



or a pharmaceutically acceptable salt thereof, wherein:



R<sup>1</sup> is halogen, CN, NO<sub>2</sub>, or V<sub>m</sub>R;

Z<sup>1</sup> and Z<sup>3</sup> are each independently CR<sup>Z</sup>, and Z<sup>2</sup> is CR<sup>1</sup>;

each occurrence of R<sup>Z</sup> is independently halogen, CN, NO<sub>2</sub>, or U<sub>n</sub>R';

R<sup>2</sup> is U<sub>n</sub>R';

X<sup>1</sup> and X<sup>2</sup> are each independently CF<sub>3</sub> or N;

each occurrence of R<sup>4</sup> is independently halogen, CN, NO<sub>2</sub>, or V<sub>m</sub>R;

each occurrence of U or V is independently an optionally substituted C<sub>1-6</sub> alkylidene  
chain, wherein up to two methylene units of the chain are optionally and independently  
replaced by -NR-, -S-, -O-, -CS-, -CO<sub>2</sub>-, -OCO-, -CO-, -COCO-, -CONR-, -NRCO-,  
-NRCO<sub>2</sub>-, -SO<sub>2</sub>NR-, -NRSO<sub>2</sub>-, -CONRNR-, -NRCONR-, -OCONR-, -NRNR-,  
-NRSO<sub>2</sub>NR-, -SO-, or -SO<sub>2</sub>-;

m and n are each independently 0 or 1;

each occurrence of R is independently hydrogen or an optionally substituted C<sub>1-6</sub>  
aliphatic group; and each occurrence of R' is independently hydrogen or an optionally  
substituted C<sub>1-6</sub> aliphatic group, a 3-8-membered saturated, partially unsaturated, or fully  
unsaturated monocyclic ring having 0-3 heteroatoms independently selected from

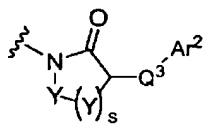
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nitrogen, oxygen, or sulfur, or an 8-12 membered saturated, partially unsaturated, or fully unsaturated bicyclic ring system having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur; or R and R', two occurrences of R, or two occurrences of R', are taken together with the atom(s) to which they are bound to form an optionally substituted 3-12 membered saturated, partially unsaturated, or fully unsaturated monocyclic or bicyclic ring having 0-4 heteroatoms independently selected from nitrogen, oxygen, or sulfur;

$Q^1$  is  $-CO-$ ,  $-SO_2-$ , or  $-SO_2NR-$ ;

$R^3$  is  $Q^2-Ar^1$ ,

or  $R^2$  and  $Q^1-R^3$ , taken together with the nitrogen atom, form the cyclic group:



, where  $s$  is 1 or 2, each occurrence of  $Y$  is independently, as valency and stability permit,  $-CO-$ ,  $-CS-$ ,  $-SO_2-$ ,  $-O-$ ,  $-S-$ ,  $-NR^5-$ , or  $-C(R^5)_2-$ , and  $R^5$  is  $U_nR'$ ;

$Q^2$  and  $Q^3$  are each independently a bond or a  $C_{1-6}$  alkylidene chain, wherein up to two methylene units of the chain are each optionally and independently replaced by  $-S-$ ,  $-O-$ ,  $-CS-$ ,  $-CO_2-$ ,  $-OCO-$ ,  $-CO-$ ,  $-COCO-$ ,  $-CONR'-$ ,  $-NR'CO-$ ,  $-NR'CO_2-$ ,  $-SO_2NR'-$ ,  $-NR'SO_2-$ ,  $-CONR'NR'-$ ,  $-NR'CONR'-$ ,  $-OCONR'-$ ,  $-NR'NR'-$ ,  $-NR'SO_2NR'-$ ,  $-SO-$ , or  $-SO_2-$ ; and wherein any carbon atom in the one or more methylene units is optionally substituted with one or two occurrences of  $R^6$ , wherein each occurrence of  $R^6$  is independently halogen,  $CN$ ,  $NO_2$ , or  $U_nR'$ , or two occurrences of  $R^6$ , or  $R'$  and  $R^6$ , taken together with the atoms to which they are bound, form an optionally substituted 3-6-membered cycloalkyl, heterocyclyl, aryl or heteroaryl ring; [[and]]

$Ar^1$  is a 5-8 membered saturated, partially unsaturated, or fully unsaturated monocyclic ring having 0-3 heteroatoms independently selected from oxygen or sulfur, or an 8-12 membered saturated, partially unsaturated, or fully unsaturated bicyclic ring system having 0-5 heteroatoms independently selected from oxygen or sulfur; wherein

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Ar<sup>1</sup> is optionally substituted with 0-5 independent occurrences of TR<sup>7</sup>; wherein T is a bond or is a C<sub>1</sub>-C<sub>6</sub> alkylidene chain wherein up to two methylene units of T are optionally and independently replaced by -NR-, -S-, -O-, -CS-, -CO<sub>2</sub>-, -OCO-, -CO-, -COCO-, -CONR-, -NRCO-, -NRCO<sub>2</sub>-, -SO<sub>2</sub>NR-, -NRSO<sub>2</sub>-, -CONRNR-, -NRCONR-, -OCONR-, -NRNR-, -NRSO<sub>2</sub>NR-, -SO-, or -SO<sub>2</sub>-;

Ar<sup>2</sup> is a 5-8 membered saturated, partially unsaturated, or fully unsaturated monocyclic ring having 0-3 heteroatoms independently selected from nitrogen, oxygen, or sulfur, or an 8-12 membered saturated, partially unsaturated, or fully unsaturated bicyclic ring system having 0-5 heteroatoms independently selected from nitrogen, oxygen, or sulfur; wherein Ar<sup>2</sup> is optionally substituted with 0-5 independent occurrences of TR<sup>7</sup>; wherein T is a bond or is a C<sub>1</sub>-C<sub>6</sub> alkylidene chain wherein up to two methylene units of T are optionally and independently replaced by -NR-, -S-, -O-, -CS-, -CO<sub>2</sub>-, -OCO-, -CO-, -COCO-, -CONR-, -NRCO-, -NRCO<sub>2</sub>-, -SO<sub>2</sub>NR-, -NRSO<sub>2</sub>-, -CONRNR-, -NRCONR-, -OCONR-, -NRNR-, -NRSO<sub>2</sub>NR-, -SO-, or -SO<sub>2</sub>-; and each occurrence of R<sup>7</sup> is independently R', halogen, NO<sub>2</sub>, or CN.

55. (Currently amended) The method of claim 54 [[50]], wherein said compound or composition is used to treat or lessen the severity of an allergy or asthma.

56. (Currently amended) The method of claim 54 [[50]], wherein said compound or composition is used to treat or lessen the severity of diabetes.